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PHYSICAL UNFITNESS
IN RELATION TO DENSITY OF POPULATION*

By Sir JOSEPH BARCROFT, C.B.E., F.R.S.

CHAIRMAN OF THE FOOD INVESTIGATION BOARD OF THE DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH

I NEED not go into statistics to convince you that the slum populations are as a whole of poorer physique than the agricultural labourer. Facing that fact the question at once arises: What are the potentialities of each? Is the slum-dweller fundamentally unfit, in the sense that he cannot be made fit if say he were put on a farm, and is the agricultural labourer fundamentally so fit that he cannot be made unfit by putting him in a slum?

Thank God we have not yet sunk to the point of breeding a population the physique of which is hopeless. There is abundant material on which to work. Unfit men can be made fit on quite a considerable scale: this has been done at Aldershot. It is so important to be clear that unfit men can be turned into fit men that I will dwell in some detail on the work. Thirty-three recruits were selected which were below the Army standard of fitness. Captain P. J. L. Capon, R.A.M.C., writes†:

> The original squad were selected as slightly worse than borderline cases. These were such that no hope could be held out of their being brought up to standard by just the ordinary methods of Army routine. Something more was necessary; but would it be successful? The final tests by the Medical Board showed:—

Men fit and up to standard	24
On the borderline, likely ultimately to become fit ..	6
Unfit (one rejected on account of eyesight)	2
Unfit, due to injury; subsequently accepted	1

It is possible of course to say that the group at the start contained no cases that were obviously hopeless. That was so. On the other hand many cases obviously hopeless from the Army standard are not obviously hopeless from the civilian standard. Thus a man may be clearly so small either in weight or height or both as to place him outside the pale as a recruit.

From the civilian point of view mere height or weight is not an index of robustness of constitution; you can only regard the importance of putting on weight as an index of a transition towards normal muscular development. Therefore let us separate the cases a little more definitely into their components. Of the 33 men 25 had defective joints. There was only one case which is not described as "much improved." The defects were for the most part various forms of spinal curvature, flat feet, stiff joints, and misshapen feet.

One of the things that interested me greatly about these men was the condition of their hearts. I therefore asked Captain Capon for a little more information on this subject, and I should like here to thank him for his kindness in helping me. Of the 21 cases tabulated there were 8 which he regarded as having hearts which were below standard, that is, which did not stand up to exercise in the normal way. Of these he regarded 6 as fit men at the end of the course. And it would seem to me, who am no heart specialist, that of the 21 men it was not only those 8 whose hearts improved but even in the cases of some whose hearts would have been passed at the start there was a definite improvement.

There were 11 cases of men whose hearts were clearly making less heavy weather of life after the course than before it, of which here is an example:—

Pulse-rate of Recruit Before and After Course

Procedure.	Before the course.	After the course.
After 20 minutes' rest sitting to enable the pulse to steady down	92	78
Stepped four times on to a chair in time with metronome ..	112	84
After one minute's subsequent rest	80	64

On the other hand there were, as I have said, 4 cases in which the pulse judged by the standard of general rate was not satisfactory. I will give an example:—

Procedure.	Before the course.	After the course.
After 20 minutes' rest sitting to enable the pulse to steady down	72	84
Stepped four times on to a chair in time with metronome	100	112
After one minute for subsequent rest	64	76

Now of course such a quickening might be brought about by some quite adventitious cause, such as a cold; but still, as on the face of it their hearts deteriorated the question must arise: Is it possible to overdo such a course? To this question I have only one answer at present—namely, that such courses should be, as this one was, in the hands of competent persons who could immediately discern any trace of the heart being overdone. It may well be a matter of discussion whether all those who are entrusted with the systematic exercise of the young should not themselves be given special courses of a medical colour which would quicken their discernment of cases which were too strenuous for the persons concerned.

I have said above that the unfit are not necessarily born unfit. I imagine they are mostly born as normal babies. The little experience which I have had—not with babies but with sheep—have led me to suppose that the as yet unborn individual is an exacting one and rather than be born unfit itself it will make great demands upon its parent. You have an old saying in Wales, I believe, "The calf destroys the flanks of its mother."

The point then arises: At what age does unfitness for want of exercise make its most impressive appearance? Two authorities who have been good enough to advise me have stated opinions which point in the same direction—namely, that it is not during, but after, school age. One than whom there is no higher has expressed the opinion to me that with regard to children of school age, their unfitness is not so much a matter of exercise as of deficient sleep. He says: "Generally I think the lack of sleep factor is more powerful in urban than rural districts because in the former there are more attractions and diversions to keep the uncontrolled child out of bed."

Captain Capon reaches a similar position—namely, that the critical time is not during school age but from the opposite direction. He says:

> I draw the conclusion that there is a good deal of deterioration between the ages of 14 and 18, both from personal observation and from going into the history of recruits in general. Many have told me of themselves and their friends that they were ordinary boys at school

* Part of an address delivered at the opening of the winter session of the Welsh National School of Medicine on Oct. 8th.

† See also *Jour. R. Army med. Cps*, May, 1937, p. 1.

but having left, long hours of work and lack of fresh air seemed to put them back. This seemed to be confirmed from my own observations, in that the majority of boys from 10 to 14 seem about average size but the youth of 14 to 18 is weedy in a disproportionate number of cases. Till therefore there is definite statistical evidence on the subject, I think we may take it that the criticial age at which the physique of this country's youth most needs looking after at the present time is in their teens.

FOUNDATION OF THE HOUSE

I have alluded to the work at Aldershot as a course of physical exercise: in reality it was much more than that. It was a course of—well to these recruits—I imagine sumptuous feeding. They were better fed even than the ordinary soldier. I give a sample day's diet: I do not mean that this was the bill of fare every day, as of course it was varied from day to day, for variety is the spice of diet as well as being the spice of life. They could eat as much as they liked of the following dishes:—

Menus for Recruits: Physical Development Depôt

Thursday, 5/8/37.

Reveille.—Barley sugar and biscuits.
Breakfast.—Porridge; fried fish and sauce; tea, bread, margarine.
11 A.M.—Milk and fruit.
Dinner.—Roast mutton, mint sauce, peas, potatoes, boiled roll and treacle.
Tea.—Tea, bread, dripping; custard tart.
Supper.—Rabbit pie; tea, bread and butter.

Here arises a very nice point. How much of the improvement was due to the good feeding and how much to the exercise? That is a point which could be argued at great length. The scientist would like here to do two experiments: he would give to one batch of men the food without the exercise and to the other the exercise without the food. Neither of these has been carried out. I suppose that the food without the exercise would lead to violent indigestion, for actually the amount eaten per man was just double what the physiological books in my day used to put down as a normal diet.

What would happen if you tried to give the exercise without the food is a more difficult question. As I say, this was not tried on the recruits; but the world has not turned round for 1900 years after the birth of Christ and an unknown number before, without instances of the maximum amount of physical work being systematically exacted on insufficient diet. An instance which may occur to many persons is that of the hands in what I may call the great days of sail. If the great days are counted as the fifties and sixties of last century (when skippers carried on *ad lib* and the food was often not only bad from every point of view but insufficient) then I suppose there is no one alive who can from his own memory give a description of the results, which could be regarded as a scientific statement. Therefore we must return to the historian for what information there is. Fortunately there is one person who is not only the authority on all such matters, but who derives his authority in no small measure from his experience. I mean Mr. Basil Lubbock, whose book "Round the Horn before the Mast" is of course a classic, but who in addition to having made the passage himself in a square-rigged vessel has written up the records of the sea from many angles. Mr. Lubbock has very kindly answered my appeal to him for information on this particular point:

I do not know whether the following could be borne out by statistics, but it is generally believed at sea that Cape Horners—sailors sailing regularly in ships which traded round the Horn—were worn out old men at 50 years of age through the hardships and lack of sufficient food. This deficient and poisonous diet naturally had a bad effect upon the blood so that sea boils were a constant scourge.

I asked Captain Capon his view about what the effects of intensive exercise would be if the men were kept on a slum diet. His answer was as follows:—

While it is possible to build a house without a foundation, the house will not be durable. Similarly physical exercise without a basic foundation of good diet will not achieve the best results. . . . One is leaving out the first essential—having a frame to build on.

So it boils down to this, that if you are to turn a C3 population into a fit population you must give them exercise and diet in both cases of the right kind and sufficient in amount. The accomplishment of this in densely crowded towns is not such an easy matter.

FOOD AND MONEY

Let me take first the question of food and I may commence with milk. In my boyhood in the country, the cow was in the byre; it was milked twice daily; the milk was brought across to the house and was drunk within a matter of hours. But London with its 8 million inhabitants can get only a small fraction of milk locally and therefore it must seek its milk elsewhere. Nor can it get its milk from any place which in respect to some other centre might be described as "locally," for that centre has the immediate call on the local milk-supply. The result is that London in search of milk has got to reach out as far as Aberdeenshire and Devonshire. But it is 500 miles from Aberdeenshire to London, and the mere cost of transport would add a great deal to the price of London milk. But that is only the beginning. It takes three days, more or less, from the time the cow is milked in Aberdeenshire till the milk is drunk in London, and milk to be drunk three days after it leaves the cow has to be safeguarded in various ways. Firstly, it must be as free from germs when it leaves the cow as possible; secondly, it must acquire the minimum of germs on handling; thirdly, the germs must not be allowed to grow on the way; and fourthly, the germs which escape all these precautions and do grow must be killed. All this means money.

With fish you have the same race to get it to the table before it goes bad. In my childhood—I lived near the sea—a man came to the door with a cart calling "Herrings, alive oh!" (Well, they were not alive but still they had been caught the night before.) Where does fish come from now? Bear Island or the White Sea. Do you suppose men are going up into the perpetual gales and night of the Arctic for nothing, to get fish? When they get it, it has to be packed in ice—money—which has to be taken to the fishing grounds—more money. The fish won't keep indefinitely in ice, so it has to be hurried—more money—to the nearest port, which again may be Aberdeen or Fleetwood, and then again it has to be put on a fast train—hurried again—more money, to get it to London. By the time it has reached London, or before that, a good deal of it has gone bad, and the price of that has got to go on to the price of what is sold—more money.

I see the matter as follows: for the rest of my lifetime at least. There is no inherent difficulty in providing enough good food for everybody, except the price. The food is there; the means to transport it become increasingly efficient.

But how much did that diet at Aldershot—without which the frame on which to build fit men would have been absent or creaky—cost? It cost 1*s.* 3*d.* per man per day, and that was only owing to the low prices at which the Army are able to purchase com-

modities in great quantities. I think for a private family it would have been nearer 2*s.* 6*d.* per day, or 17*s.* 6*d.* per week. Who is going to pay for it?

The doctor's business as a doctor is not to decide how the milk is to be paid for; that may be his pleasure as a politician, but it is, I submit, his business as a guardian of the health of the public to see that if a section of the community is C3 for the sake of milk or exercise or anything else the matter comes to the public eye and is made the concern of those who can see that the want is made good.

This brings me back to the question of exercise. Food can be provided at a price, but what about exercise? The question is fundamentally different because food is a material thing and exercise is largely a psychological one. Something is wanted comparable to "hunger" which impels people to take exercise. Probably in some obscure form it is there, but it needs cultivation in a sense which hunger does not. Probably the healthier the youth of this country the more anxious they will be to be out and about, so that you start with the advantage of a benign circle.

Whether the C3 youth will be attracted by exercises of the kind used at Aldershot remains to be seen; we can only wish all success to the efforts which the Minister of Health is about to make.

Probably no one sort of exercise will appeal to everybody. Personally the suggestion for a swimming-bath always strikes a note of sympathy. Swimming can be, but need not be competitive; with diving it provides a great variety of exercise and of a very natural character, and as a leisure pursuit it has this to its credit, that it is more social in the sense that a "chap and his girl" can go together—a feature which puts it in a much stronger position than "physical jerks" to compete with the cinema.

REACTION OF TARRED RABBITS TO THE INFECTIOUS FIBROMA VIRUS

(SHOPE)

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FROM THE IMPERIAL CANCER RESEARCH FUND

LESIONS produced on the skin of domestic rabbits by the Shope papilloma virus frequently become malignant, but only after the lapse of many months. Rous and Kidd (1936) injected papilloma virus intravenously into rabbits whose ears had been painted with tar and found that the virus localised at the tarred sites and, furthermore, produced lesions which were often malignant from the beginning—a "fulminant carcinosis." This observation prompted us to study the action of another virus—the virus of infectious fibroma (Shope 1932)—on tarred rabbits; and since this virus affects mainly the connective tissues we injected the tar intramuscularly.

When inoculated into the skin, subcutaneous tissues, or testes of domestic rabbits, the virus produces fibroma-like swellings which, commonly, regress after two to four weeks. The virus causes proliferation of fibroblasts but the lesions are not progressive and, in the general view, not neoplastic.

This paper contains a preliminary account of modifications in the reaction of rabbits to the fibroma virus produced by the action of tar for varying periods before injection of the virus. The results obtained in the two laboratories are complementary and are therefore reported conjointly.

I—PRODUCTION OF A TRANSPLANTABLE FIBROMATOUS TUMOUR

Two rabbits received four injections each of 0·25 c.cm. of tar into the muscles of the right leg over a period of four months. They were then injected intravenously with 5 c.cm. of a filtrate of Shope's infectious fibroma virus (OA strain, Andrewes and Shope 1936). The virus localised at the tarred site, producing large local swellings: these began to regress after six weeks. In one rabbit regression was complete, but in the other the swelling became stationary and then, three months after the virus injection, began to increase in size once more. Six and a half months after the virus injection the animal, which was much wasted, was sacrificed. The swelling consisted of creamy necrotic material, with a tumour-like mass at the side. Similar tumour-like masses with necrotic centres occupied the position of the inguinal and lumbar lymph-nodes, and there were small nodules, mostly necrotic, in the subcutaneous tissues and muscles. The masses in the thigh and abdomen were fibromatous tumours composed of closely packed fibroblasts, with abundant fibrils. Mitoses were rare. The tumours appeared more cellular than the ordinary infectious fibroma. There were many inflammatory cells around them.

Transplantation of minced tissue from the mass in the thigh into the leg muscles of three rabbits produced a small fibroma-like nodule in each animal, and serial propagation has now been successful through 11 passages, made at intervals of 11 to 23 days. Some growth was palpable in thirty-eight out of forty-two rabbits; in all but two, however, it was self-limited, regression beginning in 2 or 3 weeks when the nodule reached an average size of $20 \times 10 \times 10$ mm. In one rabbit of the fourth "tumour-generation," an intramuscular transplant continued to grow for over 2 months and had regressed but little after 3 months; in another, inoculated intratesticularly at the same time, growth is still continuing after 3 months.

The transplanted tissues proved to be bacteriologically sterile and it has hitherto been impossible to demonstrate fibroma virus by inoculation of rabbits with centrifuged extracts. The transplanted fibromata had the histological structure of the parent growth; sometimes they contained many mitoses and often the inflammatory reaction was nearly absent, except around a central necrosis.

II—THE PRODUCTION OF A NON-TRANSPLANTABLE SARCOMA

Six half-grown rabbits were injected in the right leg with tar on four occasions within twenty-one weeks, each dose being 0·2 c.cm. One week after the last injection 0·5 c.cm. of an extract of dried fibroma tissue was injected intravenously into each of three rabbits, and a week later similar injections were made into the other three. The virus was of the original fibroblastic strain but its virulence was somewhat lower than that of the OA strain used for the other experiments. The first group of rabbits developed no tumours. In each rabbit of the second group a swelling developed at the site of the tar a few days after the injection of virus, but in two rabbits the swelling receded and did not recur. The swelling in the third rabbit decreased in size at the same time as the others but later resumed growth at

a slow rate. Four months after injection of virus the rabbit was killed. Its general condition had been deteriorating for several weeks without evident acceleration of the growth of the tumour. The tumour, measuring approximately 5 × 3 × 3 cm., was situated in the region of the knee-joint and invaded the muscles of the leg and thigh. Outlying nodules of growth extended along the course of the main vessels and nerves towards the pelvis. Within the pelvis there was a growth not continuous with that in the thigh but probably the result of lymphatic spread. It measured approximately 3 × 2 × 2 cm. and surrounded and invaded the lower end of the right ureter; obstruction was evidenced by dilatation of the proximal part of the ureter and enlargement of the right kidney, with hydronephrosis. There were growths 1 to 4 mm. in diameter scattered throughout both lungs. None were found in other organs. The tumour in the limb was tough and fibrous and contained accumulations of tar and also areas of homogeneous yellowish-white tissue. The pelvic and lung tumours were white and firm but not tough or fibrous. In the microscopical preparations there was a corresponding excess of fibrosis in the limb tumour; it was, no doubt, a local reaction to the deposits of tar. Otherwise all the growths were similar and are best described as polymorph-celled sarcomata. Fibrous tissue was not prominent. Some of the tumour cells were elongated but most were round or oval and they had abundant cytoplasm. The nuclei were large and mostly round or oval. There were, also, many giant nuclei and some multinucleated cells. Mitotic figures were numerous and many were atypical. The histogenesis is not established but the tumour is not certainly of fibroblastic origin and differs from the infectious fibromata and from the transplantable tumour described in the preceding section.

The pelvic tumour was minced and inoculated subcutaneously and intramuscularly into three rabbits and into the testes of two rabbits. A saline suspension of the tumour was injected intravenously into two other rabbits. None of the seven rabbits developed a tumour. This contrasts with the high percentage of "takes" obtained with the transplantable fibromatous tumour, but reproduces the usual experience with spontaneous rabbit tumours. On account of its invasiveness, dissemination, and histological structure we conclude that the growth is a malignant neoplasm.

III—GENERALISED FIBROMATOSIS IN TARRED RABBITS

In subsequent experiments fibroma virus filtrate was given intravenously to nine rabbits; four of these had been injected with tar over a period of 4½ months; five had received a single dose of tar intramuscularly 5 days previously. All the rabbits developed a local fibroma lesion at the tarred site. All four animals which had received the longer tarring, and four out of five of the others developed generalised fibromatous nodules, a few millimetres to several centimetres in diameter, persisting for many weeks. They were present in different animals in the subcutaneous tissues over the back and flanks, particularly in relation to the vertebral column, on the ears, nose, skull, in the liver, testis, and lymph-nodes. Four rabbits after progressive wasting were found moribund and were killed, and in two of these the nasal passages were obstructed by fibromatous masses. Such generalised fibromatosis had never been observed before in rabbits injected intravenously with fibroma virus, nor did it occur in four control animals injected with virus at the time of these experiments, but receiving no tar. The generalised "pocks" which sometimes appear on the skin of fibroma-infected animals are much smaller and quite transitory. We have succeeded in recovering fibroma virus from generalised lesions in tarred animals, in one instance as late as 4 months after the inoculation.

IV—EFFECT OF TAR ON RESOLUTION OF SKIN LESIONS

Since this effect of the tar was evidently a general one, we injected 0·2 c.cm. intramusculârly into three rabbits and inoculated them, along with three untarred controls, intradermally with dilutions of virus 5 days later. The lesions appeared at the same time in all six rabbits and followed the same course for about 3 weeks. Then regression began in the three controls and the lesions had practically disappeared after 4 weeks. In the tarred rabbits, however, the lesions remained almost stationary for 5 to 6 weeks in all, but regression then set in, despite further injections of tar. In one animal's skin lesions are still present after 12 weeks. A second experiment on four rabbits gave similar results. Tar injections had a similar delaying effect on the regression of lesions produced by subcutaneous injection of virus.

Benzpyrene has been found to affect the response of rabbits to intravenous or intradermal inoculations of fibroma virus, much as tar does, but it is still unknown whether the effect is a specific one for carcinogenic substances.

Histologically the tumour nodules in the tarred animals described in Sections III and IV show in general the same picture. They are composed of fibroblasts, with production of a delicate network of intercellular fibrils. The cell-protoplasm is abundant and shows characteristically the presence of droplets, or many small granules, which stain deep blue with the aniline-blue of Mallory's stain. The inflammatory reaction in and about the deeper nodules is very scanty. Traces of these inclusions can be seen in the ordinary fibroma. They are present in abundance in fibroma lesions in the cottontail rabbit. The epithelium overlying the skin tumours in the tarred rabbits shows hyperplasia and eosinophilic inclusion bodies in the cytoplasm similar to those in the fibroma of the cottontail. In this animal, which is the natural host of the virus, the fibromata persist for several months, as in some of our tarred rabbits.

DISCUSSION

Discussion of the implications of our results is premature and further investigations on the local and general effects of tar on the lesions produced by the fibroma virus are in progress. There is one point, however, which calls for comment. It might be argued that the true neoplasm produced in one experiment was the consequence of the action of tar alone and independent of the action of the virus. Against this argument must be placed firstly the fact that hitherto it has been found impossible to induce sarcomata in rabbits by tar; and secondly that the lesions produced in these experiments by the combined action of tar and virus form a series grading from lesions like those of infectious fibroma to a true malignant neoplasm.

SUMMARY

In rabbits injected with tar and subsequently with fibroma virus there was a generalised fibromatosis which was not found in rabbits without tar, and the regression of intracutaneous fibromata was delayed. Virus localised at the site of the tar pro-

ducing, in one experiment, a transplantable fibromatous tumour and, in another experiment, a polymorph-celled sarcoma which was not transplantable.

REFERENCES

Andrewes, C. H., and Shope, R. E. (1936) *J. exp. Med.* **63**, 157.
Rous, P., and Kidd, J. G. (1936) *Science*, **83**, 468.
Shope, R. E. (1932) *J. exp. Med.* **56**, 793.

THE USE OF PRONTOSIL IN THE TREATMENT OF GONORRHŒA

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Up to the present the treatment of gonorrhœa has been largely confined to the use of urinary antiseptics, irrigation of the urethra, and treatment of complications as they arise. Of late we have had, in addition, vaccines and gonococcal antitoxin. None of these methods has made any notable change in the length of time it takes to cure even an uncomplicated acute case. It was thought that the introduction of antitoxin for gonorrhœa heralded the much sought-after specific, but, so far, the superiority of this product to vaccines is not obvious. Furthermore, universal treatment with antitoxin of a complaint so widespread as gonorrhœa is, for many reasons, not practicable. It submits the patient to the risk of anaphylaxis at a later date if other serum treatment is found necessary, and it should not, in my opinion, be used, except in selected complicated cases.

For the last few years drugs of the sulphanilamide group have been tried in the treatment of many conditions with varying success. The successes obtained in several cases of meningococcal infections suggested the use of this drug in the treatment of cases of gonorrhœa, in view of the similar morphological characteristics of the meningococcus and the gonococcus. The results in a preliminary series of 25 cases so treated were so encouraging that the present controlled series of 100 cases was started, and as a result the efficacy of sulphanilamide in the treatment of gonorrhœa, both acute and chronic, appears to have been proved.

The following notes represent the findings in a series of 100 cases of acute and chronic gonococcal urethritis in which gonococci were demonstrated, and in a few cases of urethritis where no gonococci were found (so-called "non-gonococcal" urethritis).

Owing to the comparatively large doses required daily, it was found in the preliminary series that preparations given by mouth (Prontosil Album, Bayer; Colsulanyde, Crookes) did not suffice by themselves, and it was therefore decided to give Prontosil Soluble by injection supplemented with Colsulanyde (sulphanilamide) by mouth. This combination of oral and intramuscular therapy seems to have the additional advantage that the sulphonamide level is kept up, and a continuous action of the drug maintained.

The dosage used depended entirely on the reaction of the patient, but the minimum in most cases was 27·5 c.cm. of prontosil soluble intramuscularly, combined with 8 oz. of colsulanyde. Toxic effects were noted in only 2 cases and each of these was of the "non-gonococcal" form of urethritis. In these cases intense headache and vomiting occurred, and one of the patients became unconscious two hours after the intramuscular injection of 5 c.cm. of prontosil soluble. He had completely recovered next morning, and no further effects were noted throughout the treatment. Dees and Colston[1] state that some of their patients complained of dizziness and lassitude, but this toxic manifestation was not noted in the series under consideration.

From these remarks it will be seen that, in the dosage used, the toxicity is extremely low and it is, therefore, surmised that the gastro-intestinal disturbances noted in the preliminary series when colsulanyde only was used were due more to local irritation of the gastric mucosa than to toxic effects of the drug. The only precaution taken was the withholding of sulphur or sulphur-containing compounds.

TECHNIQUE

The technique, as used now, differs slightly from that used in the preliminary series. The dose of prontosil soluble has been increased by 2·5 c.cm., so that, over a period of ten days, each case now receives 30 c.cm. intramuscularly, together with 8 oz. of colsulanyde. Local measures have also been adopted. Anterior or posterior irrigations with potassium permanganate, alternating with oxycyanide of mercury, in high dilutions have been used. From experience it has been found that each case must be treated on its merits: a rigid routine for all cases cannot be laid down. This will be apparent from a consideration of the cases reported. The routine carried out in all cases on first coming under treatment is as follows:—

1st day.—Examination of direct smear and culture from urethral discharge. Irrigations twice daily with potassium permanganate solution 1/20,000. Prontosil soluble 5 c.cm. intramuscularly.

2nd day.—Irrigations twice daily with 1/20,000 solution potassium permanganate. Prontosil soluble 5 c.cm. intramuscularly.

3rd to 7th day.—Irrigations as above. Prontosil soluble 2·5 c.cm. intramuscularly. Colsulanyde 2 drachms four times daily (oral).

7th day.—Examination of direct smear from urethral discharge if obtainable.

7th to 10th day.—Irrigations changed to oxycyanide of mercury 1/20,000. Prontosil soluble 2·5 c.cm. intramuscularly. Colsulanyde 2 drachms four times daily.

10th day.—Examination of direct smear and culture from urethral discharge if obtainable.

11th day.—Test for cure.

The above routine is added to as the particular case demands, and in some cases in the series two, and even three, courses of treatment have been found necessary.

The test for cure is spread over two days and is carried out as follows:—

1st day.—Urethroscopy. Injection of gonococcus vaccine 1 c.cm. subcutaneously (1 c.cm. containing 50 millions). Injection of 5 c.cm. of a 1 per cent. solution of silver nitrate into the anterior urethra. Microscopical examination and culture of any resultant discharge.

2nd day.—Examination of urine (2-glass test). Examination of prostate and vesicles and microscopical examination of the prostatic fluid. Passage of a Clutton's sound and further examination and culture of any discharge noticed or obtainable the following day.

If, on the completion of the test for cure, the patient is free from any sign of urethral discharge, and the prostatic fluid is negative on culture, he is discharged to duty and 8 days' quarantine.

CONSIDERATION OF CASES

Sixty-eight acute cases of gonorrhœa, twenty-four chronic cases, and eight cases in which gonococci

[1] Dees, J. E., and Colston, J. A. C. (1937) *J. Amer. med. Ass.* **108**, 1855.

Case No.	Disease.	Acute or chronic.	Prontosil (c.cm.) and Colsulanyde (oz.).		Days on other treatment.*	Total days.	Result.
			Amount given.	Days on.			
1	G.	Ac.	P. 27·5 C. 8	10	3	13	Cure.
2	G.	Ac.	P. 40·0 C. 4	26	8	34	"
3†	G.	Ch.	P. 27·5 C. 8	10	14	24	"
4	G.	Ac.	P. 27·5 C. 8	10	24 (8)	34	"
5	G.	Ac.	P. 27·5 C. 8	10	6	16	"
6†	G. Epid. Phim.	Ch.	P. 27·5 C. 8	10	124 (36)	134	"
7	G.	Ac.	P. 30·0 C. 8	10	4	14	"
8	G.	Ch.	P. 27·5 C. 8	10	6	16	"
9	G.	Ac.	P. 42·5 C. 14	16	7	23	"
10	G.	Ac.	P. 27·5 C. 8	10	6	16	"
11	G.	Ch.	P. 10·0 C. 11·0	11	52 (4)	63	"
12	G.	Ac.	P. 27·5 C. 8	10	19 (6)	29	"
13	G.	Ac.	P. 30·0 C. 8	10	3	13	"
14	G., seq Prost.	Ch.	P. 27·5 C. 8	10	115 (6)	125	"
15	G.	Ac.	P. 30·0 C. 8	10	3	13	"
16	G.	Ac.	C. 10	10	12	22	"
17	G.	Ac.	P. 27·5 C. 8	10	7	17	"
18	G.	Ac.	P. 27·5 C. 8	10	6	16	"
19	G.	Ch.	P. 10·0 C. 15	16	39	55	"
20†	Urethr., seq G.	Ch.	P. 22·0 C. 8	14	4	18	Relapsed
21	G. Epid.	Ch.	P. 12·5 C. 18	22	83 (2)	105	Cure
22	Urethr., seq G.	Ch.	P. 27·5 C. 8	10	4	14	"
23	Urethr., seq G.	Ch.	P. 27·5 C. 8	12	10	22	"
24†	G.	Ac.	P. 30·0 C. 8	10	4	14	Relapsed
25	G.	Ac.	P. 27·5 C. 8	10	4	14	Cure.
26	G.	Ac.	P. 27·5 C. 13	15	16	31	"
27	G.	Ac.	P. 27·5 C. 8	10	5	15	"
28	G.	Ac.	P. 27·5 C. 8	10	9	19	"
29	G.	Ac.	P. 27·5 C. 8	10	3	13	"
30	G.	Ac.	P. 27·5 C. 8	10	4	14	"
31†	G.	Ac.	P. 27·5 C. 8	10	22 (4)	32	"
32	G.	Ac.	P. 27·5 C. 8	10	3	13	"
33	G.	Ac.	P. 27·5 C. 8	10	11	21	"
34†	G.	Ch.	P. 55·0 C. 16	20	36 (12)	56	"
35	G.	Ac.	P. 27·5 C. 10	12	19 (9)	31	"
36	G.	Ac.	P. 15·0 C. 4	6	17 (5)	23	"
37	G.	Ac.	P. 27·5 C. 8	10	5	15	"
38	Urethr., seq G.	Ch.	P. 27·5 C. 8	10	5	15	"
39	G.	Ac.	P. 27·5 C. 8	10	4	14	"
40	G.	Ac.	P. 30·0 C. 8	10	3	13	"
41	G.	Ac.	P. 20·0 C. 5	8	23 (2)	31	"
42	G.	Ac.	P. 27·5 C. 8	10	3	13	"
43	G.	Ac.	P. 27·5 C. 8	10	5	15	"
44†	G.	Ac.	P. 27·5 C. 14	14	27	41	"
45	G.	Ac.	P. 27·5 C. 8	10	5	15	"
46	G.	Ac.	P. 27·5 C. 8	10	5	15	"
47	G.	Ch.	P. 15·0 C. 5	7	71 (3)	78	"
48	G.	Ac.	P. 30·0 C. 8	10	5	15	"
49	G.	Ac.	P. 30·0 C. 8	10	2	12	"
50†	G.	Ch.	P. 57·5 C. 16	22	44	66	"
51†	G.	Ch.	P. 30·0 C. 8	10	9	19	Cure.
52†	G.	Ac.	P. 57·5 C. 16	22	27	49	"
53	G.	Ac.	P. 30·0 C. 8	10	6	16	"
54	G.	Ac.	P. 30·0 C. 8	10	6	16	"
55	G.	Ac.	P. 30·0 C. 8	10	6	16	"
56	G.	Ac.	P. 30·0 C. 8	10	3	13	"
57	G. Epid.	Ch.	P. 30·0 C. 8	10	11	21	"
58	G.	Ac.	P. 87·5 C. 26	33	34	67	"
59†	G.	Ac.	P. 30·0 C. 8	10	10	20	"
60	G.	Ac	P. 27·5 C. 8	10	4	14	"
61	G.	Ac.	P. 50·0 C. 16	20	2	22	"
62	G.	Ac.	P. 30·0 C. 8	10	10	20	"
63	G.	Ac.	P. 27·5 C. 8	10	4	14	"
64	G.	Ac.	P. 30·0 C. 8	10	3	13	"
65	G.	Ch.	P. 12·5 C. 2	4	92 (8)	96	"
66†	G.	Ch.	P. 27·5 C. 8	10	17	27	"
67	G.	Ch.	P. 20·0 C. 9	11	6	17	"
68	G.	Ac.	P. 22·5 C. 8	10	4	14	"
69	G.	Ch.	P. 27·5 C. 8	10	33 (3)	43	"
70	G.	Ac.	P. 15·0 C. 10	12	15 (2)	27	"
71	Urethr. (Non-G.)	..	P. 27·5 C. 8	10	10	20	"
72	Urethr. (Non-G.)	..	P. 27·5 C. 8	10	5	15	"
73	Urethr. (Non-G.)	..	P. 10·0	3	4	7	"
74	Urethr. (Non-G.)	..	P. 15·0 C. 8	10	10 (3)	20	"
75	Urethr. (Non-G.)	..	P. 30·0 C. 8	10	10 (4)	20	"
76	Urethr. (Non-G.)	..	P. 27·5 C. 8	10	4	14	"
77	Urethr. (Non-G.)	..	P. 30·0 C. 10	12	15	27	"
78	G.	Ac.	P. 30·0 C. 12	12	9	21	"
79†	G.	Ch.	P. 27·5 C. 8	10	5	15	"
80	G. Prost.	Ac.	P. 62·5 C. 18	22	32	54	Failure.
81	G.	Ac.	P. 24·0 C. 11	10	6	16	Relapse in 5 days.
82	G.	Ac.	P. 32·5 C. 12	12	8	20	Cure.
83	G.	Ac.	P. 34·5 C. 12	15	15	30	"
84†	G.	Ch.	P. 22·5 C. 5	7	..	7	"
85	G. Prost.	Ac.	P. 50·0 C. 16	18	24	42	Failure.
86†	G. Cowp.	Ac.	P. 55·0 C. 23	26	59	85	"
87	G.	Ac.	P. 40·0 C. 34	36	26	62	"
88	G.	Ac.	P. 30·0 C. 8	10	17	27	Cure.
89	G. Prost.	Ac.	P. 70·0 C. 23	26	38	64	Failure.
90	G.	Ac.	P. 60·0 C. 16	20	25	45	Cure.
91	G. Epid.	Ac.	P. 30·0 C. 10	11	27	38	"
92†	G.	Ac.	P. 30·0 C. 8	10	9	19	"
93	G. Prost.	Ac.	P. 45·0 C. 16	18	46	64	Failure.
94†	G. Rheum.	Ch.	P. 25·0 C. 14	14	84 (38)	98	Cure.
95†	Urethr. (Non-G.)	..	P. 10·0 C. 8	10	4	14	Collapse.
96	G.	Ac.	P. 57·5 C. 18	18	12	30	Cure.
97	G.	Ac.	P. 30·0 C. 8	10	5	15	"
98†	G.	Ac.	P. 32·5 C. 8	10	16	26	"
99	Epid., seq G.	Ch.	P. 15·0 C. 5	7	25 (5)	32	"
100	Epid. G.	Ch.	P. 15·0 C. 5	7	15 (6)	22	"

could not be demonstrated were treated in the series. Two relapses (3 per cent.) occurred in the acute cases.

CASE 24 (see Table) returned to hospital suffering from a left-sided epididymitis 2 days after being discharged to duty. No discharge was present on examination, and gonococci could not be demonstrated in an artificially produced discharge either on smear or culture during the 24 days he remained in hospital on the second occasion.

CASE 83 did not react to prontosil therapy in the first instance for 27 days. He returned to hospital 9 days after discharge with a profuse urethral discharge containing gonococci. Urethroscopy demonstrated a folliculitis and suitable local treatment was instituted. This man did not report for 14 days after he first noticed the discharge in the original infection.

Among the twenty-four chronic cases there was only one relapse (Case 20).

This patient had relapsed twice previously, and, before admission to hospital, he had been treated for 201 days by local measures only. With the first course of prontosil the discharge cleared up, and he was free from all signs of gonorrhœa after 15 days. He did not relapse for 21 days after return to duty. He stated that on the 21st day his left testicle suddenly became swollen, but not tender, and that there was no return of urethral discharge. On admission he was found to be suffering from a left-sided epididymitis, and had a fairly profuse urethral discharge containing gonococci. A further course of prontosil was given and he has now been free from any sign of either epididymitis or urethral discharge for 10 days. A further test for cure and a complement-fixation test for gonorrhœa will be done in this case before discharge to duty.

Failure to respond to treatment has been recorded in six cases—all in the acute series (8·8 per cent. in acute gonorrhœa and 6 per cent. in all types of cases) (Cases 58, 80, 85, 86, 89, and 93 in the Table).

EXPLANATION OF TABLE

(*see opposite page*)

* In parentheses are given the number of days during which the patient remained under treatment after the course of prontosil was concluded.

G. = gonorrhœa. Epid. = epididymitis. Phim. = phimosis. Prost. = prostatis. Urethr. = urethritis. Non-G. = non-gonococcal. Cowp. = Cowperitis. Rheum. = rheumatism.

† NOTES

Case 3.—Under treatment 77 days prior to admission.

Case 6.—Patient cured 10 days after prontosil but remained in hospital 31 days for circumcision.

Case 20.—Relapse after prontosil. Treated for 201 days prior to admission to hospital. (See Consideration of Cases.)

Case 24.—Relapse after prontosil; but no gonococci found; discharged after further 24 days.

Case 31.—Fourteen days G.C.A. before prontosil. Case of epididymitis, G.C.A. tried instead of shock therapy, &c.

Case 34.—Two courses of prontosil.

Case 44.—Hospital treatment prolonged for diathermy of venereal warts.

Case 50.—Two courses of prontosil; 11 days' interval between.

Case 51.—Cured with prontosil in 19 days having previously failed to react to treatment by usual methods at another clinic.

Case 52.—Two courses of prontosil; 11 days between the courses.

Case 59.—Total includes 8 days' quarantine.

Case 66.—Total includes 8 days' quarantine. (Admitted as a relapse after irrigations, &c.)

Case 79.—Cured with prontosil in 15 days after being under treatment with irrigations, &c., for 5 months at another clinic.

Case 84.—Two months' treatment with irrigations, &c., prior to admission to hospital.

Case 86.—This patient concealed the disease for 21 days.

Case 92.—Including 8 days' quarantine.

Case 94.—Total includes 14 days' massage before return to duty.

Case 95.—Cured in 14 days. Patient became unconscious after second injection of prontosil soluble. Treatment continued with colsulanyde only.

Case 98.—Including 9 days' quarantine.

In all six cases, prontosil treatment was not started for several days after the discharge was first noticed and, in one case, disease was concealed for 21 days before the discharge was noticed on routine examination. The patients themselves were in a low state of health and had lost weight. In this respect it is noteworthy that the only patients, other than the above six, who required more than one course to effect a cure were underweight, anæmic-looking, and obviously incapable of putting up a resistance to any infection. The healthy type of man reacted uniformly, most of them in 10 days and a few in over 15 days. No failure occurred in the chronic cases or in the "non-gonococcal" series.

The average number of days' treatment in the acute cases was 20. This average is taken from 62 successful cases, and though it represents the days in hospital it is, in fact, an over-estimate of the time necessary for cure, because in several of the cases other procedures were undertaken after the patient had been cured of gonorrhœa, such as diathermy of penile warts and circumcision, and this added considerably to the number of days in hospital. From a consideration of the results, it can be taken that cure is obtained in favourable cases (91·2 per cent. in the acute cases) in a little over 15 days. An average for the chronic cases is more difficult to compute as the number of days the patient has been under treatment previously has to be taken into consideration. The average number of days on prontosil therapy in this series is 11·4 and this gives a fair estimate of the efficacy of the drug in the treatment of chronic cases (see Case 6). In the "non-gonococcal" types of urethritis, the average days' sickness is 17. In the control series, however, the average was only 19 days, so the superiority of prontosil over other forms of treatment in this type of infection is not so marked. In this present series no case showing a persistent "diphtheroid" in the urethral discharge has been treated by prontosil, for in the preliminary investigation it was found that such cases were resistant to any form of treatment other than an autogenous vaccine.

Controls were limited to 30 cases in all (27 cases of acute gonorrhœa and 3 of chronic gonorrhœa). The treatment carried out as a routine in all the control series was as follows:—

Anterior irrigations twice daily with potassium permanganate solution 1/20,000 changed after seven days to oxycyanide of mercury solution, and after a further seven days to boric and methylene-blue solution, both in strengths of 1/20,000. During the whole period of treatment an alkaline diuretic mixture was used, and after the sixth day gonococcal vaccine was started with an initial dose of 0·1 c.cm. (1·0 c.cm. containing 50 millions) rising in four day intervals to 1·0 c.cm. Complications were treated by appropriate measures as they arose. All cases were subjected to the same bacteriological control and had the same test for cure as the cases treated with prontosil.

In the 27 acute cases the average number of days under treatment was 43·4. Individual cases showed a great variation in the number of days under treatment—some being cured in as little as 26 days (four in all), whilst others remained in hospital for 70 days (two in all) before being discharged to duty. No relapses occurred in the control series but two became complicated by an epididymitis and 10 of the 27 developed a posterior urethritis.

The 3 chronic cases had been under treatment for 64, 40, and 53 days respectively before admission to hospital. The average number of days these cases remained under treatment was 42. Except for the addition of prostatic massage and the use of posterior

instead of anterior irrigations the treatment in the chronic cases was the same as that used in the acute.

The following records of a few cases illustrate the type of result to be expected from prontosil therapy.

CASE 1.—This man was admitted to hospital with acute gonorrhœa 9 days after exposure to infection. Treatment as detailed above was carried out and the patient was discharged to duty 12 days after admission. Follow-up records show no sign of relapse after 37 days at full duty.

CASE 12.—A case of acute gonorrhœa. This patient had a very profuse urethral discharge containing gonococci after 14 days' treatment with local irrigations and a diuretic mixture. Fifteen days after the start of prontosil therapy he was discharged to duty, and no relapse has occurred 44 days later.

A cursory glance through the Table will demonstrate that these two cases are typical of the results obtained in the large majority of acute cases of gonorrhœa. The next case well illustrates this efficacy of prontosil therapy in the treatment of acute infections.

CASE 98.—The patient was admitted to hospital with dysuria and a very profuse urethral discharge. He had been treated in hospital some time previously over a period of 5 months for gonorrhœa complicated by prostatitis. In view of the previous history, it was thought that difficulty would be experienced in effecting a cure, but no sign of gonorrhœa was evident after 17 days' treatment with prontosil. He was kept under observation in hospital for a further 9 days, and has now no sign of gonorrhœa 66 days after discharge.

That prontosil is of value in the chronic and complicated cases is evident from the results obtained in the following cases.

CASE 6.—Admitted to hospital in March, 1937, with a right-sided epididymitis, this patient was treated by various methods including gonococcal antitoxin and shock therapy. In spite of treatment the condition progressed, and eventually the right epididymis became disorganised. A sinus developed on the right side of the scrotum leading down to the epididymis. Later, a left-sided epididymitis developed. After 88 days' treatment the patient's condition was worse than when admitted. Prontosil therapy was started, and after 10 days' treatment, not only had the sinus healed and the left epididymis become normal, but no discharge could be obtained from the urethra. Circumcision was performed as a phimosis had occurred during the course of treatment, and during the time he was convalescent from this operation he was kept under observation. He was eventually discharged to duty, and on re-examination and a second test for cure 42 days later, including a complement-fixation test for gonorrhœa, no infection was demonstrated.

CASE 14.—The patient was admitted to hospital having been under treatment for 109 days previously. On admission he was found to be suffering from a profuse discharge containing gonococci and the prostate was enlarged. He was put on prontosil treatment, receiving in all 27·5 c.cm. prontosil soluble and 8 oz. colsulanyde over a period of 10 days. Six days later he was discharged to duty and follow-up records do not show a relapse after 27 days.

SUMMARY AND CONCLUSIONS

1. Treatment with Prontosil Soluble and sulphanilamide, combined with irrigations, proved efficient in 90 out of 100 cases of gonorrhœa, acute and chronic. In favourable cases of acute gonorrhœa cure is obtainable in about 15 days.

2. Bad health, giving rise to poor resistance in the patient, is an adverse factor to cure by any form of treatment, including treatment with prontosil.

3. The dosage of prontosil should be adjusted to the needs of the individual patient, and other forms of treatment used as the occasion demands.

4. The shorter the time between infection and start of treatment the greater the success of prontosil therapy. Cases which failed to report, or had been unable to get efficient treatment for 15–20 days after infection, did not react as well to prontosil as cases which were treated within 5 days of infection.

5. It has been noted that cases which do not react to prontosil therapy within 18 days are not likely to react at all. It appears that these patients reach a stage where no further advance is made, and their powers of reaction to other forms of treatment is adversely affected. The dosage, therefore, should be limited to 40 c.cm. of the prontosil soluble together with 13 oz. of colsulanyde over a period of 15 days.

6. A review of the cases treated suggests that prontosil will revolutionise the treatment of gonorrhœa It has reduced the days' sickness to one-third, and from the economic point of view, has proved its value over and over again.

My thanks are due to Surgeon-Commander W. P. E. McIntyre, R.N., for the various bacteriological tests carried out.

ANÆMIA AND AGRANULOCYTOSIS DURING SULPHANILAMIDE THERAPY

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DURING the past two years since the introduction of Prontosil by Domagk, various similar compounds have been employed, and have been used over an increasingly wide field. At present, there must be hundreds of medical men in all parts of the world using sulphanilamide—Prontosil Album, Prontosil Soluble, Proseptasine, and other allied compounds. These are used to combat not only the hæmolytic streptococcus, but all forms of streptococci, the typhoid bacillus, the meningococcus, gonococcus, and some types of pneumococcus. The dosage and period of administration are liable to vary widely in the hands of different workers, and in the treatment of different infections. Thus Colebrook and Kenny (1936) employing the original prontosil and prontosil soluble in the treatment of puerperal infections, used up to 44 grammes of the two drugs over a period of 14 days. For *Bacillus coli* urinary infections, Kenny, Johnston, and von Haebler (1937) using sulphanilamide, gave up to a total 12·6 g. of the drug over a period of 7 days. In general it may be said that there is no fixed dosage as yet of these new drugs, and in establishing what constitutes safe therapy, there is inevitably a certain amount of trial and error. As the beneficial effects of the drugs have been further recognised, so has the tendency to use larger doses increased. Bayer's pamphlets admit the possibility of starting with 90 c.cm. of the 2·5 per cent. solution of prontosil flavum (red prontosil) and six tablets (now 0·5 g. each) of sulphanilamide. The duration of the therapy is not indicated in the pamphlets.

Toxic Effects

That insufficient warning was given of the possible toxic effects of these drugs is now becoming clear. There may occur cerebral disturbances—e.g., drowsiness, dizziness, headache, and disorientation. Also described are alimentary symptoms, such as vomiting; the signs of urinary tract irritation, and signs of peripheral sensory disturbance. An important

toxic effect of this group of drugs is shown in the blood picture. Sulphæmoglobinæmia and methæmoglobinæmia are the best known features of this, and they have been well described (Archer and Discombe 1937). For this reason we are confining the present account to the toxic effect of the drugs shown by the blood count, which revealed in one of our cases a complete agranulocytosis, and in three others some degree of anæmia with evidence of abnormal marrow activity.

AGRANULOCYTOSIS

Already a few cases of agranulocytosis have been reported, all with fatal terminations.

Borst's patient (1937), who was treated for *B. coli* pyelocystitis for 39 days, received in 30 days 63·7 g. of prontosil flavum. This patient then developed a sore-throat and fever, and died two days later with an almost complete agranulocytosis and a hypochromic anæmia (hæmoglobin 70 per cent.) No angina was found at autopsy, but this was a feature in the cases of Young (1937) Plumer (1937), and Model (1937). In Young's case there was fever, and the agranulocytosis was recognised on the 22nd day. The patient died on the 23rd day, and the total dose of sulphanilamide was 54 g. given in eighteen days. In Plumer's case, 46 g. of sulphanilamide was followed by a similar sudden fatal result in a woman of 46 with subacute bacterial endocarditis. In Model's case, the patient was a young man of 20, who received 54 g. of proseptasine in 18 days. Again there was a fatal termination three days after recognition of the agranulocytic angina, in spite of administration of pentnucleotide and a blood transfusion. There was severe hypochromic anæmia at death (hæmoglobin 45 per cent.).

Our case, whose description follows, is of particular interest in that it appears to be the only one to recover after agranulocytosis had been induced by one of these drugs.

CASE 1.—A housewife aged 39, a thin, but otherwise healthy woman until October, 1935. She then had symptoms of ulcerative colitis and was treated in hospital for two months. The symptoms recurred in July, 1936,

TABLE I (Case 1).—*Blood Count*

Date.	R.B.C. (per c.mm.).	Reticulocytes (per cent.).	Hb. (per cent.).	W.B.C.	Differential count (per cent.).					
					Polymorphs.	Lympho-cytes.	Proleuco-cytes.	Eosinophils.	Basophils.	Large mono-nuclears.
June 26	5,300,000	—	106	5,000	61	32	—	2	2	3
July 26	—	—	—	2,000	2	96	—	—	—	2
„ 27	3,500,000	1·2	60	444	—	100	—	—	—	—
„ 28	3,600,000	1·0	62	1,800	43*	52	—	1	—	4
„ 29	—	—	—	13,000	53	41	1	—	—	5
„ 30	—	—	—	8,000	53	41	—	1	1	3
„ 31	—	—	—	15,000	61	36	—	—	1	2
Aug. 3	4,000,000	—	70	22,000	66	18	10	—	—	6
„ 9	3,400,000	0·7	66	8,500	58	37	—	—	2	3
„ 16	4,800,000	2·6	88	10,000	56	40	—	1	1	2

* Many young polymorphs.

and at six weekly intervals subsequently. Each attack lasted about six weeks. In June, 1937, she had such severe diarrhœa that she was admitted to Hammersmith Hospital. *Bacterium dysenteriæ* Flexner was cultured from the stools. Sigmoidoscopy showed a deeply congested and ulcerated mucous membrane. This condition of the mucosa was again seen on July 16th, but symptomatically the patient was much better. By July 22nd the stools were solid and were only just streaked with blood.

Sulphanilamide, 1·5 g. thrice daily, was given for three weeks from June 30th, 94·5 g. of sulphanilamide in all. During this time the infection disappeared, and the patient seemed quite well. On July 22nd, the third day after ceasing therapy, there was slight dysphagia. In the evening the temperature rose to 101° F. Two days later the pharynx was very red and bore several patches of greyish-white exudate. There were a few similar patches inside the lips and cheeks. The temperature had risen to 103·5° F. A throat swab gave a growth of *Staphylococcus albus*, *Streptococcus viridans*, and a non-hæmolytic streptococcus. In the direct smear fusiform bacilli and spirochætes were also seen. The patient now looked very ill and collapsed. Her colour was high and the pulse-rate rapid. During the next three days her throat and mouth became more inflamed and ulcerated, and the temperature remained at 103° F. The cervical glands were comparatively little enlarged.

On the fourth day of fever and angina, blood count showed a total white cell count of 2000 cells per c.mm. and 2 per cent. polymorphs (Table I). The next day there was complete agranulocytosis with a total white cell count of 444 cells per c.mm. Pentnucleotide, 0·7 g. was given twice daily for three days by intramuscular injection, and then once daily for two days. Campolon 2 c.cm. was also given once at the start of this therapy. As can be seen from Table I, there was a rapid response. The temperature fell in the first two days from 103° F. to normal, and the patient felt much better. The throat and mouth were treated with potassium permanganate gargles, and were almost clear by the end of a week from the onset of throat symptoms. A definite degree of hypochromic anæmia also developed, but responded well to large doses of ferri. et ammon. cit. (gr. 90 daily).

ANÆMIA

Three cases in which there was a severe anæmia produced by sulphanilamide have been reported by Harvey and Janeway (1937). They are described as cases of hæmolytic anæmia.

Two were in adult negroes, a man of 36 and a woman of 26. Both were treated for hæmolytic streptococcal throats, the former with 22·8 g. of sulphanilamide in five days, and the latter with only 6·5 g. in two days. Severe anæmia, with high reticulocyte counts, appeared and progressed in both. The first had 1,570,000 red cells per c.mm., with 20 per cent. reticulocytes and 30 per cent. hæmoglobin; the second 2,000,000 red cells with 12·5 per cent. reticulocytes and 18 per cent. hæmoglobin. Both cases showed a pronounced leucocytosis and circulating immature white cells. The third case, a ten-months baby with meningococcal meningitis, received just over 16 g. of sulphanilamide during a week. The temperature then rose, the hæmoglobin fell to 40 per cent. and the red cells to 2,020,000 per c.mm. Again there was a reticulocytosis (12 per cent.) and a leucocytosis (32,400 per c.mm.). Only in the second case was there icterus. All cases recovered with transfusions.

The importance of variability of tolerance of these drugs is emphasised, though to a less extent, in our own experience. Three cases are described which developed anæmia during treatment with sulphanilamide.

CASE 2.—A farrier, aged 45, of fair physique, and previously a healthy man. He was admitted on the 2nd day of a meningococcal meningitis, and was almost comatose.

Lumbar punctures were performed twice on the first day, and 20 c.cm. of antimeningococcal serum was given intrathecally and 40 c.cm. intramuscularly. That day also 80 c.cm. of prontosil flavum was given and 40 c.cm. the next day, when lumbar puncture was repeated. The following day he was able to take 2 g. of sulphanilamide thrice daily by mouth, and lumbar puncture was again performed. This procedure was followed for four days, and then on what was the 7th day of the illness the cerebro-

spinal fluid was sterile for the first time; it then also attained its maximum concentration of sulphanilamide, 3 mg. per 100 c.cm. On each of the next two days 1 g. of sulphanilamide was given thrice daily, and as the fluid was then macroscopically clear the sulphanilamide was stopped. He was by now symptom free, and the last cerebro-spinal fluid taken 11 days after the cessation of sulphanilamide was clear and sterile. In eight days 30 g. of sulphanilamide and 6 g. of prontosil flavum had been given.

TABLE II (Case 2)

Day of illness.	R.B.C. (per c.mm.).	Hb. (per cent.).	Reticulocytes (per cent.).	W.B.C.	Differential count (per cent.).				
					Polymorphs.	Lymphocytes.	Eosinophils.	Basophils.	Large mononuclears.
2nd	3,050,000	65	0·3	13,500	80·0	9·0	1·0	—	6·0
3rd	3,600,000	60	2·4	13,000	79·0	18·0	—	—	3·0
8th	2,500,000	50	1·8	15,000	70·0	26·5	1·5	—	—
9th	2,800,000	50	1·6	20,000	58·5	37·0	1·5	0·5	0·5
13th	2,300,000	40	3·0	14,000	68·0	26·0	2·5	0·5	—
15th	2,400,000	40	4·0	13,000	63·5	32·5	1·0	1·5	—
19th	2,500,000	42	7·2	16,000	49·0	51·0	—	—	—
22nd	2,500,000	42	3·4	15,000	56·5	22·0	1·0	—	—
30th	1,700,000	36	3·3	16,000	54·5	32·5	1·5	0·5	1·0
33rd*	—	—	—	—	—	—	—	—	—
37th	2,700,000	46	2·2	12,000	40·5	46·0	1·5	0·5	—
42nd	2,700,000	52	1·0	16,000	49·5	41·5	2·5	—	—

* Blood transfusion: 600 c.cm. given.

TABLE III (Case 2). *Abnormal Cells*

Day of illness.	Myeloblasts.	Proleucocytes.	Myelocytes.		Megaloblasts.	Normoblasts.
			Neutrophils.	Eosinophils.		
	Per cent.				Per 200 W.B.C.	
8th	—	—	2·0	—	1	—
9th	—	—	2·0	—	2	—
13th	—	—	3·0	—	3	—
15th	—	—	1·5	—	—	—
22nd	3·0	2·5	13·5	1·5	2	—
30th	3·0	4·5	2·5	0·5	4	—
35th	1·5	5·5	2·5	—	3	—
37th	1·5	5·5	3·5	1·0	4	—
42nd	1·0	4·0	1·5	—	2	1

The patient had some degree of anæmia on admission, the red cells being 3,000,000 per c.mm. and the hæmoglobin 65 per cent. The white cell picture was normal. On the 8th day of treatment the red cells had fallen to 2,500,000 per c.mm. and the hæmoglobin to 50 per cent. There were a few immature cells of both the red and white cell series in the peripheral blood (Tables II and III). The character of the anæmia was not altered although there was an improvement of 16 per cent. in the hæmoglobin and a slight rise in red cells following iron therapy and a blood transfusion (Table II). The patient felt perfectly well throughout the period of anæmia, and remained quite afebrile. No evidence was found of sulph- or methæmoglobinæmia, neither was there clinical or laboratory evidence of hæmolysis or icterus. The patient's spleen became palpable on the 19th day of the illness, and on the 44th day was still 1 in. below the costal margin in deep inspiration.

CASE 3.—A nurse, aged 25, came to hospital with a recurrence of a *B. coli* infection, which had previously been cleared for six months by a course of mandelic acid. The relapse had lasted two months when she was admitted. She had a rather frail physique and weighed 91 lb. The urine contained abundant pus and *B. coli*, and there was no evidence of tuberculous infection. A pyelogram was normal; but she had much colic from the right ureter and often vomited.

Sulphanilamide was given for 17 days from May 22nd, 1·8 g. being given daily and 30·6 g. in all. At the end of this time the urine was sterile and there were no symptoms. But ureteric symptoms returned on June 19th and pus was again found in the urine. A further course of sulphanilamide was given, 4·5 g. daily being given over 27 days up to July 16th. In spite of sterile urine towards the end of this time, the symptoms of pyelitis persisted. *B. coli* reappeared in the urine soon after the termination of therapy, and persisted until mandelic acid treatment was given.

TABLE IV (Case 3)

Date.	R.B.C. (per c.mm.).	Reticulocytes (per cent.).	Hb. (per cent.).	W.B.C.	Differential count (per cent.).				
					Polymorphs.	Lymphocytes.	Eosinophils.	Basophils.	Large mononuclears.
May 15	4,900,000	—	90	10,000	62	36	—	—	2
July 1	4,800,000	—	88	5,000	61	37	—	—	2
„ 17	4,400,000*	20·2	82	8,000	57	39	3	—	1
„ 18	4,400,000*	18·6	74	9,000	48	48	—	2	2
„ 20	3,760,000*	15·4	72	5,300	—	—	—	—	—
„ 21	3,480,000	5·5	72	6,200	—	—	—	—	—
„ 22	3,975,000	7·8	75	5,400	—	—	—	—	—
„ 23	4,100,000	7·0	78	6,000	35	60	1	1	3
„ 26	4,160,000	7·5	80	3,300	—	—	—	—	—
„ 29	3,700,000	7·1	75	5,000	—	—	—	—	—
Aug. 4	4,100,000	0·6	82	9,000	47	47	—	1	5
„ 12	4,500,000	1·8	90	10,000	68	30	3	—	2

* Marked anisocytosis and polychromasia.

The blood picture on admission was normal. On the day after the termination of heavy sulphanilamide therapy, 152 g. in all, a reticulocytosis of 20 per cent. was found. Subsequently, as shown in Table IV, a hypochromic anæmia developed which reacted well to large doses of ferri. et ammon. cit. (gr. 90 daily). There was no great effect on leucopoiesis and no icterus or increase in the serum bilirubin was evident.

CASE 4.—A child aged 9. Again with frail physique, weighing only 49 lb. She was treated for a *B. coli* urinary infection in December, 1936, with mandelic acid; but the condition relapsed and she was chronically ill and failed to gain weight. At the end of June of this year she was readmitted with a heavy *B. coli* infection of the urine. She was given 1 g. of sulphanilamide thrice daily for five days from July 9th. At the end of this time the urine was sterile. She appeared a little cyanosed on July 14th, but no evidence was found of alteration of the hæmoglobin. On July 16th sulphanilamide was given again, but after 3 g. on the first day had to be stopped; for on the following day the child vomited and was drowsy. She seemed definitely paler. Her blood count showed a hypochromic anæmia which became more severe for a few days, and then slowly disappeared (Table V). Reticulocytes were a feature of the films and the leucocytes

were diminished. No icterus was present. There was fewer (99°–100° F.) for four days.

The *B. coli* infection persisted, but yielded later to mandelic acid treatment. The anæmia was treated with iron—ferri. et ammon. cit., gr. 10—thrice daily and responded well.

TABLE V (Case 4)

Date.	R.B.C. (per c.mm.).	Reticulocytes (per cent.).	Hb. (per cent.).	W.B.C.	Differential count (per cent.).				
					Polymorphs.	Lymphocytes.	Eosinophils.	Basophils.	Large mononuclears.
July 10	6,500,000	—	118	12,000	62	38	—	—	—
„ 19	4,200,000	5·2	80	5,000	35	56	6	—	2
„ 21	4,080,000	4·9	72	4,200	—	—	—	—	—
„ 26	4,180,000	4·8	75	5,300	—	—	—	—	—
„ 29	4,450,000	5·9	78	5,000	—	—	—	—	—
Aug. 4	4,800,000	0·6	86	10,000	26	72	—	2	—
„ 16	5,400,000	1·8	100	6,000	45	50	1	—	4

Discussion

As is suggested by its chemical structure, *p*-aminobenzenesulphonamide (sulphanilamide or prontosil album) is a potential marrow poison. Benzol and toluol, and in particular their nitro- and amido-compounds have long been well known as producing this type of toxic action. The experience of others suggests that the new drugs related to sulphanilamide are likely also to have a similar action on the marrow. Both erythropoiesis and leucopoiesis may be depressed by sulphanilamide, and as is true of other of the nitro- and amido-compounds just mentioned, it may act to a different degree on these two functions in the same individual. This is instanced by a temporary complete suppression of leucopoiesis in one patient, who at the same time only became moderately anæmic (Case 1); and by Case 2, on the other hand, who developed a severe anæmia of leuco-erythroblastic type without any striking decrease in the number of circulating normal leucocytes. In considering possible reasons for this variability of drug action, it is noteworthy that Case 2 was anæmic before sulphanilamide treatment, though abnormal red and white cells were not then present.

In contrast to these two cases, a case of subacute bacterial endocarditis which showed an initial normal red count and a leucocytosis (15,000 per c.mm.) only suffered a transient depression of erythropoiesis in spite of prolonged and heavy dosage with sulphanilamide.

No change in the leucocyte count occurred beyond a temporary fall to a normal figure (8500 per c.mm.). This patient, a man of 27 with a *Streptococcus viridans* infection on a congenital cardiac lesion, received about 310 g. of sulphanilamide in just over three months. There were intervals of six and eleven days in the treatment during this time. The patient, whose bacteriæmia persisted, showed clinical improvement, and there was neither methæmoglobinæmia nor sulphæmoglobinæmia at any time. The red cell count after two months' therapy fell from 5,000,000 per c.mm. to 4,000,000, and the hæmoglobin from 100 per cent. to 66 per cent., but with iron therapy the count returned to normal although the sulphanilamide was continued.

The tolerance to sulphanilamide shown by this patient encouraged us to use large doses in the others described. All our cases in which marrow activity was affected had heavy doses of sulphanilamide, and so differed from the second case described by Harvey and Janeway in which anæmia followed a small dose of the drug. It is probably true to say of sulphanilamide as of amidopyrine, that it is impossible to state the exact amount that is a dangerous dose. With amidopyrine, attacks of agranulocytosis have been produced by as little as gr. 3, or have followed continued and daily use of the drug over long periods (Kracke and Parker 1935). In our cases the actual size of the total dose would appear to have been the important factor; for only after prolonged treatment did blood changes occur in two of the cases. In a third case, one of meningitis, the treatment was intensive; and in the fourth the patient was a child who received an adult dose of the drug. Children are said to tolerate the drug well, but evidently a proportionate reduction of the drug is advisable for them.

In considering treatment with these drugs, certain facts must be borne in mind. "Idiosyncrasy" may be present and result in the appearance of symptoms after the administration of a very small quantity of the drug. Apart from any such dramatic abnormality in the response, symptoms of toxicity may appear after prolonged or intensive administration: the size of the dose required to cause such symptoms is variable. The general health of the patient may be of importance. We feel that anæmic, debilitated, or aged patients require especially careful treatment with these drugs. There would ordinarily seem to be little danger in giving an adult of about 140 lb. weight, a daily dose of 1·5 g. to 2·0 g. of the drug for up to a fortnight; but after such a period, a rest would seem advisable in all cases. From our experience and from that of others whom we have quoted it is evident that the treatment should be guided wherever possible by blood counts. The appearance of immature erythrocytes or a leucopenia is an indication to pause in the therapy. Such control of the blood picture is particularly desirable where intense or prolonged therapy is projected. The dangers of out-patient treatment with this group of drugs is evident, and should be permitted only when the toxic effects of therapy can be recognised immediately they appear.

The therapeutic results in our cases make disappointing reading. In the case of subacute bacterial endocarditis, as might have been expected, there was no real improvement, although the temperature was normal during therapy and the patient felt better for many weeks. Both the *B. coli* urinary infections relapsed after more than adequate dosage. In the two cured cases other factors in treatment make it impossible to assess the effect of sulphanilamide.

We wish to take this opportunity of thanking Prof. F. R. Fraser and Dr. Janet Vaughan for helpful suggestions. We are also most grateful to Dr. J. E. S. Carmichael and Mr. D. L. Hughes for the results of many of the blood counts. We are indebted to the chief medical officer of the London County Council for permission to publish the case reports.

REFERENCES

Archer, H. E., and Discombe, G. (1937) *Lancet*, **2**, 432.
Borst, J. G. G. (1937) *Ibid*, **1**, 1519.
Colebrook, L., and Kenny, M. (1936) *Ibid*, **1**, 1279.
Harvey, A. M., and Janeway, C. A. (1937) *J. Amer. med. Ass.* **109**, 1, 12.
Kenny, M., Johnston, F. D., and von Haebler, T. (1937) *Lancet*, **2**, 119.
Kracke, R. R., and Parker, F. P. (1935) *Sth. med. J.* **28**, 911.
Model, A. (1937) *Brit. med. J.* **2**, 295.
Plumer, H. E. (1937) *New Engl. J. Med.* **216**, 711.
Young, C. J. (1937) *Brit. med. J.* **2**, 105.

SOURCE OF ANDROGENIC AND ŒSTROGENIC SUBSTANCES OF THE URINE

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The discovery that androgenic* and œstrogenic substances are excreted in the urine of non-pregnant subjects aroused the hope that examination of the quantities present might help in the diagnosis of hypo- and hyper-function of the gonads. The fact that men and women both excreted about the same amounts of androgens and œstrogens suggested that there would be difficulties of interpretation, but the known ambisexual activity of the gonads made it still possible to suppose that the substances were of gonadal origin and might indicate the general level of gonadal activity.

A large amount of work on "hormone analysis" has been based on this assumption, but in the course of time two complications have become evident. The first is that large excesses of the substances have so far been found in the urine of non-pregnant subjects only when there is adrenal disturbance. Simpson, de Fremery, and Macbeth (1936) found up to 500 units† per day of androgenic material in cases of adrenogenital syndrome, as compared with normal values of 10–50 units. Slot (1936) and Kenyon et al. (1937) have recorded male hormone excretion of 2200 I.U. per litre and 480 I.U. per day respectively by women with malignant tumours of the adrenals. Out of a large number of urines examined at the National Institute, the greatest excretion of androgenic material found was also associated with malignant growth of the adrenal. In this case the maximum value observed was about 3500 I.U. per litre. During the earlier stages, when the amount excreted was about 500 I.U. per litre, much of the excess androgen was isolated and characterised as dehydroandrosterone, which was present to the extent of at least 110 mg. per litre (Callow 1936). The converse condition is recorded by Burrows, Cook, Roe, and Warren (1937), who found a great excess of œstrogenic activity (about 3000 I.U. per litre) in the urine of a man showing feminisation as the result of an adrenal tumour.

The second complication is that large amounts of the gonad hormones can be administered without much affecting the quantities of œstrogens and androgens excreted. One aspect of this subject was dealt with in The Lancet last week by Kemp and Pedersen-Bjergaard (1937), who found that increased œstrogenic activity of the urine accounts for only 3–12 per cent. of administered œstrone. This conclusion is in keeping with the results obtained by other workers, to whom reference is made by the Danish authors, and with our own results on the fate of administered androgens. The work of Steinach and Kun (1937), which suggests that administration of androgens may result in an increased excretion of œstrogens, offers prospects of further complications.

Observations of this kind throw doubt on the assumption that the gonads are the source of the excreted androgens and œstrogens, and have stimulated interest in the examination of the amounts of "gonadal" hormone excreted after gonadectomy or in cases where the clinical picture of hypogonadism is indisputable. The results of the various investigations have been somewhat conflicting.

Womack and Koch (1932) failed to find androgenic activity in the urine of an ovariectomised woman, but of two eunuchs examined by Koch (1936) one excreted 4 B.U. of male hormone per day, and the other 3·5 B.U. of male hormone and 5·3 rat units of œstrogen daily. The normal output was found to be 16–72 B.U. of androgen and 5–28 rat units of œstrogen. Recently Koch and his co-workers (Kenyon et al. 1937) have reported that a eunuch excreted 1 I.U. of androgen per day and 30 I.U. of œstrogen, and another one 3·5 I.U. and 45 I.U. respectively. The authors point out, however, that the observations are not beyond criticism, since one subject was schizophrenic and the other approaching senility. Eng (1936) found 2–15 mouse units per litre of œstrogenic activity in the urine of three castrated women, and similar quantities in that of four castrated men. Frank, Goldberger, and Salmon (1936) found that every one of twelve ovariectomised women excreted œstrogenic material, in amounts between 15–200 M.U. per litre. McCullagh and Renshaw (1934) failed to detect any androgenic activity in the urine of eleven eunuchs, but their method of chloroform extraction does not seem to have been very efficient (see McCullagh, McCullagh, and Hicken 1933). Dingemanse, Borchardt, and Laqueur (1937) found up to 12 units of male hormone and 60 units of œstrogen per litre in the urine of an ovariectomised woman. Kemp and Pedersen-Bjergaard (1937) found that two ovariectomised women produced less than 8 M.U. (40 I.U.) and a third less than 15 M.U. (75 I.U.) per day. Work being carried out by Dr. Callow at the National Institute shows that substantially normal amounts of androgens may be found in the urine of gonadectomised subjects of both sexes as well as in that of patients with a complete clinical picture of hypogonadism. The possibility that the excretion of active material in such cases is due to its ingestion in the food was excluded by Eng and is considered most unlikely by Laqueur and his co-workers. It must be concluded, therefore, that substances having biological activity typical of the gonadal hormones may be elaborated and excreted in the absence of the gonads. The excesses of the substances which occur in the urine in cases of adrenal disturbance are probably of adrenal origin, and, considering all the known circumstances, it is likely that the normal androgen and œstrogen content of the urine of non-pregnant subjects is also derived, at least in part, from the adrenals. As pointed out by Parkes (1937) and Kenyon et al. (1937), such a conclusion is in keeping both with the occurrence in the adrenals of many substances related to the gonadal hormones, including at least one androgenic steroid, adrenosterone (Reichstein 1936), and with the œstrogenic activity of adrenal extracts (Callow and Parkes 1936). It is further supported by Davidson's (1937) remarkable observation that some development of the atrophic prostate and seminal vesicles of castrated rats may be caused by the administration of adrenotropic hormone.

It is probable, therefore, that quantitative estimations of the gross œstrogenic or androgenic activity

* Substances having the power to cause development of the male accessory organs and characters, usually tested on the atrophic comb of the capon; otherwise known as "male hormone."

† "Unit" or B.U. (bird unit) of male hormone roughly correspond to the international unit (I.U.). R.U. = rat unit of œstrogen; M.U. = mouse unit of œstrogen. The equivalent in international units (I.U.) is given in parentheses where there is enough data to make the conversion. The international unit for androgenic activity is the specific activity of 0·1 mg. of the international standard of androsterone; that for free œstrogenic activity the specific activity of 0·0001 mg. of the international standard of œstrone.

of the urine will not necessarily provide information about the functional state of the gonads. Further progress, however, may be made (*a*) by considering the androgen/œstrogen ratio, as suggested by Koch, (*b*) by estimating the ratio between various androgens or various œstrogens, or (*c*) by the isolation and characterisation of new substances in the urine, which may be of diagnostic value, whether or not they have biological activity. In considering these lines of attack, it must be remembered that very little is known as to the chemical nature and relative amounts of the substances which confer œstrogenic and androgenic activity on the urine of non-pregnant subjects, and that the urgent need is for further chemical study of the problem. Research on this subject, now in progress at the National Institute as part of a larger scheme of work on hormone analysis of blood and urine, is being retarded by the difficulty of obtaining urine from castrated males, and Dr. R. K. Callow, National Institute for Medical Research, Holly Hill, London, N.W.3, would be most grateful for information as to eunuchs from whom the collection of a 3-day sample of urine might be possible.

The work in progress at the National Institute alluded to in this review has been greatly facilitated from the clinical side by the generous coöperation of Prof. Arthur Ellis and Dr. A. C. Crooke, London Hospital, and of Dr. S. Levy Simpson.

REFERENCES

Burrows, H., Cook, J. W., Roe, E. M. F., and Warren, F. L. (1937) *Biochem. J.* **31**, 950.
Callow, R. K. (1936) *Chem. and Ind.* **55**, 1030.
— and Parkes, A. S. (1936) *J. Physiol.* **87**, 28P.
Davidson, C. S. (1937) *Proc. Soc. exp. Biol., N.Y.* **36**, 703.
Dingemanse, E., Borchardt, H., and Laqueur, E. (1937) *Biochem. J.* **31**, 500.
Eng, H. (1936) *Klin. Wschr.* **15**, 349.
Frank, R. T., Goldberger, M. A., and Salmon, U. J. (1936) *Proc. Soc. exp. Biol., N.Y.* **33**, 615.
Kemp, T., and Pedersen-Bjergaard, K. (1937) *Lancet*, Oct. 2nd, p. 842.
Kenyon, A. T., Gallagher, T. F., Peterson, D. H., Dorfman, R. I., and Koch, F. C. (1937) *J. clin. Invest.* **16**, 705.
Koch, F. C. (1936) *J. Urol.* **35**, 382.
McCullagh, E. P., McCullagh, D. R., and Hicken, N. F. (1933) *Endocrinology*, **17**, 49.
— and Renshaw, J. F. (1934) *J. Amer. med. Ass.* **103**, 1140.
Parkes, A. S. (1937) *Nature, Lond.* **139**, 965.
Reichstein, T. (1936) *Helv. chim. Acta*, **19**, 223.
Simpson, S. L., de Fremery, P., and Macbeth, A. N. (1936) *Endocrinology*, **20**, 363.
Slot, W. J. B. (1936) *Acta med. scand.* **89**, 371.
Steinach, E., and Kun, H. (1937) *Akad. Anz.* June 24th, and *Lancet*, Oct. 2nd, p. 845.
Womack, E. B., and Koch, F. C. (1932) *Endocrinology*, **16**, 273.

CLOSED VENTRICULOGRAPHY

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VENTRICULOGRAPHY is now a recognised routine procedure as an aid in localising cerebral tumours in selected cases. Generally it is performed by a surgeon, but Sir James Purves-Stewart introduced a simple hand drill that enabled ventriculography to be carried out by a physician in the ward. I saw a demonstration of this apparatus about twelve years ago and used it for some time afterwards. I found however that, not having the manual dexterity of its inventor, I was never able to get the drill tripod to stand comfortably on the skull, and it appeared to me that the same type of drill might be adapted to some form of apparatus that could be held in the hand and which could also be operated mechanically.

TECHNIQUE

After various trials the technique described below was finally adopted and has been used for the last ten years.

Apparatus.—This consists of a dental engine driven electrically together with the ordinary dental hand-piece (A in Fig. 1). The drills that I have had made fit this dental hand-piece and are little larger than the ordinary dental drill; they are made of hard steel, lance-pointed, with a groove running almost to the point (B). These

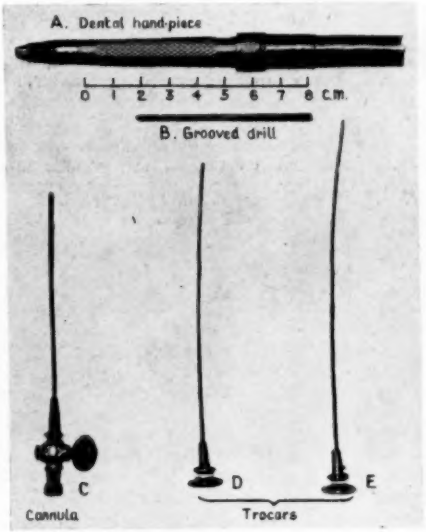

FIG. 1.—The apparatus.

drills make a hole about 1 mm. in diameter, and it is possible to carry out the operation without any anæsthetic other than a local one for the scalp. The rest of the apparatus consists of one or two cannulæ (C) fitted with trocars, a long one (E) that projects about ¾ in. beyond the end of the cannula and a shorter one (D) of exactly the same length as the cannula. These cannulæ are provided with a tap at the end so that as soon as the ventricles are entered the flow of cerebrospinal fluid can be regulated as also the amount of air subsequently to be introduced. These taps are of such a size that they will fit the nozzle of the record syringes.

Procedure.—The drill having been driven through the skull in the required position and direction, the handpiece is detached by a simple pressure on the end leaving the drill in situ. The cannula, which is about 8 cm. long, threaded with the longer trocar, is directed into the hole made by the drill by engaging the projecting trocar in the groove in the drill and pushing the whole forward until the cannula is felt to enter the hole in the bone. When this occurs the drill is withdrawn, leaving the cannula still threaded with its long trocar in place. I find in practice that it is perfectly easy to feel when the drill has perforated the bone, and I cannot recall a single instance in which the drill has gone through the dura mater. After the removal of the drill, the next step is to push the trocar and cannula gently forward until the dura is pierced. This again is quite easily felt by the sudden loss of resistance. When the dura has been perforated the long cannula is removed and the shorter one substituted. The cannula is now gently pushed forward, a centimetre at a time, the trocar being withdrawn every now and then to ascertain when the ventricle is reached, which information is conveyed by the escape of cerebrospinal fluid. As soon as the ventricle is tapped it is as well to close the tap and prevent any sudden loss of fluid. I have known a sudden escape of fluid to be followed by

rather troublesome symptoms of collapse. In a few moments, however, it is usually quite safe to proceed to withdraw fluid and this is done by opening the tap at the end of the cannula and allowing the fluid to fall into a sterile test-tube marked in c.cm. so that the amount of fluid taken off can be readily ascertained. When the required amount of fluid has been withdrawn, air is introduced by means of a record syringe whose piston has been pulled out to its fullest extent and having been attached to the cannula is gently pushed down, expelling its contained air into the ventricle. Any number of syringefuls of air can be introduced by simply closing the

FIG. 2.—Ventriculogram showing distortion of right ventricle and displacement of third ventricle to the left.

tap on the cannula and detaching the syringe, pulling out the piston, and applying to the cannula once more.

The points on the surface of the scalp at which the drill may be entered are marked out on the shaved scalp before the patient is taken to the theatre.

A line drawn in the sagittal plane of the head from the external occipital protuberance to the nasion is measured and divided, and from this mid-point a site of 4·5 cm. in front and on the line is determined and then two points at right angles to this line and at a distance of 4·5 cm. from the first marked site. These two points to right and left of the midline give the surface markings for tapping the anterior horns of the ventricles.

Although this route is convenient for the operator since the subject is lying on the back, I do not use it as a rule unless I have failed to find the ventricles by the posterior route, which is the one usually chosen since it gives access to the vestibule of the ventricles, the widest part of the system. If the anterior route is to be used the drill should be placed vertically on the skull and then directed downward and inwards towards the angle of the mouth on the opposite side. The posterior approach is the easier and is the one I always attempt first. The markings for this are usually given as those defined by Keen or Jenkins, both of which are based on Reid's base line—a line running from the outer angle of the orbit through the centre of the auditory meatus.

Keen's point is 1¼ in. vertically above the centre of the auditory meatus and 1¼ in. behind, and he directs the drill towards the tip of the opposite ear. This route is at times a little close to the lateral sinus and for this reason Jenkins chooses a point a little higher—namely, 2 in. above the meatus and 4/5 in. behind.

I have found both these measurements rather difficult to determine at times on the scalp and I use another method which is generally much easier to make out and successful in most cases.

On the sagittal line I mark a point 3·5 cm. up from the external occipital protuberance, an easily defined landmark, and from the point marked I make two others one on each side right and left at right angles at a distance of 3·5 cm. from the midline. The drill is directed forwards and a little inwards and the vestibule of the ventricle is usually found at a depth of about 6 or 7 cm. The right ventricle is tapped first with the patient lying well over on the left side, and having introduced a reasonable amount of air and with the cannula still in position, with the tap closed, the subject is turned completely over on to the right side to allow the air to make its way into the ventricle of the opposite side through the foramen of Monro. After a minute or so in this position he is turned back on to the left side again and the cannula tap opened. Quite often some further fluid will escape, having been displaced from the ventricle of the opposite side, and if this happens a little more air is introduced. When it is judged that sufficient air has been put into the ventricles the cannula is withdrawn, the small wound closed with a little square of gauze soaked in collodion, and the patient is sent for X ray examination.

If the skiagram, examined in the wet state, is satisfactory, nothing more is done, but if the films are not likely to be of help, another attempt is made to find the ventricle on the opposite side.

PRECAUTIONS

Although the procedure of ventriculography is generally considered to lie within the field of the surgeon the simple technique described above, which is merely a modification of that of Sir James Purves-Stewart, is sufficiently safe to be considered as part of the examination that can be carried out by the physician. There are, however, one or two precautions that it is advisable to adopt. The first is that the whole procedure should be carried out under strict aseptic conditions, for which reason I always beg the use of a theatre. Secondly, I think it advisable for the surgeon of the unit to see the case just before ventriculography so that should it become necessary to proceed to immediate trephine this can be done without loss of time.

The following case illustrates the value of this procedure and is of some intrinsic interest.

A man of 38 presented himself with the history that in February, 1937, he became ill with what was diagnosed as influenza, which laid him up for a week after which he returned to his work (that of a school teacher), but never felt quite fit. A few weeks later he noticed that he had some difficulty in walking. This was ascribed to rheumatism and various lines of treatment were tried without much success. As he did not improve he was put off work again by his medical adviser who began to consider the case one of early disseminated sclerosis.

I was asked to see him early in June and by this time he had very definite signs of increased intracranial pressure, intense headache, some vomiting, and bilateral papilloedema. He complained of vertigo and his wife said that he had a tendency to walk to one side, generally the right, and that at times he staggered in his walk. I found that he was deaf on the right side and I thought there was some slight dysdiadokokinesia on this side also. With these signs I ventured the opinion that he was suffering from an intracranial tumour situated in the right cerebellopontine angle, and advised his admittance to hospital.

He was admitted and after a few days it became clear that the above diagnosis could not be upheld. On careful observation the walk did not appear to veer to one side, there was no staggering, nor could any dysdiadokokinesia

be elicited, and it was found that his deafness had been present since the age of three! Incidentally I may remark that I feel sure that some of the "localising" signs were the result of suggestion on my part. He was a South of Ireland man and with all the native politeness of his countrymen he did not wish me to be disappointed in finding the symptoms I was looking for, so he produced them. I have met this acquiescence before, and though it shows a pleasant spirit it does not make for reliability of history notes. After he had been in the ward for a week he became suddenly unconscious and was found to have a left hemiplegia. He recovered from this attack in about four days, and on being told that in all probability it would become necessary to trephine he decided to go home, and this he did against our advice. At home he appears to have become violent and strange in his behaviour, and after about another four days his wife asked that he might be readmitted.

On readmission I punctured the right ventricle and introduced about 20 c.cm. of air. In view of the left hemiplegia noted before I had asked my surgical colleague to be ready to trephine over the right fronto-temporal region as I suspected that the growth would be in this situation, but on examining the X ray films of the ventriculogram I was astonished to find that there was a complete obliteration of the left ventricle with displacement and some distortion of the right and third ventricles. This suggested that the lesion was probably on the left side and I explained the previous left hemiplegia as being due to displacement of the right ventricle. He was therefore decompressed on the left side. He did not recover, and a large tuberculoma was found in the left fronto-temporal region.

The ventriculogram (Fig. 2) shows the distortion of the right ventricle and the rightward displacement of the third ventricle.

SUMMARY

Ventriculography is of considerable assistance in certain cases of intracranial neoplasm. It may give invaluable evidence in doubtful clinical observations. The "closed" method* may be carried out conveniently by the physician. The posterior approach is the best and the surface markings are easily determined from the external occipital protuberance. The technique described provides a simple operation in which the cutting tool is held like a pencil, and therefore its travel is easily controlled.

Clinical and Laboratory Notes

PERFORATION OF THE DIAPHRAGM BY PEPTIC ULCER

WITH ACCOUNT OF A CASE

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GASTRO-THORACIC fistula is a rare complication of peptic ulcer. When such a fistula occurs it usually follows a subphrenic abscess, but occasionally it arises directly, the ulcer floor becoming adherent to the diaphragm. When the diaphragm is perforated by a collection of pus beneath it, the left pleural sac is almost always involved, but when the fistula arises directly the pericardium or heart may be affected. As S. Fenwick [1] has pointed out, an ulcer can only become adherent to that part of the diaphragm with which it lies in contact, and the disease being more common on the lesser curve than at the fundus of the stomach, the pericardial portion of the diaphragm may as likely be perforated as the pleural. Rarely the ulcer may penetrate the central and posterior part of the diaphragm and thus open into the mediastinum.

The results of perforation of the diaphragm by peptic ulcer in 21 cases collected by Fenwick have been summarised by Hurst [2] and are shown in the Table.

Perforation of Diaphragm in Twenty-one Cases

Position of ulcer.	Left pleura.	Peri-cardium.	Heart.	Medias-tinum.
Fundus (6 cases) ..	5	1	0	0
Lesser curvature (15 cases)	6	4	4	1
Total (21 cases) ..	11	5	4	1

The case recorded here was one of direct diaphragmatic perforation by a simple ulcer and the correct diagnosis was not made during life.

The patient, an ex-policeman aged 58, was admitted to hospital suffering from abdominal pain. He had been treated 3½ years previously for two months on account of dyspepsia; a diagnosis of duodenal ulcer was made. He had always been well except for this and had had no dyspeptic symptoms recently. For 12 months he had felt abnormally tired and had lost 1½ st. in weight. Increasing frequency of micturition also noticed lately, and three months ago catheterisation for acute retention was necessary. No cough or dyspnœa. Increasing constipation, very troublesome for the last two months. When sitting down, 8 hours before admission, rapidly increasing pain developed in the left hypochondrium, where it remained constant with occasional exacerbations. There had been no vomiting.

Examination.—Poor physique with sallow complexion; very slight cyanosis of lips; tongue dry and furred. Temperature 100° F., pulse-rate 108, respirations 24. Abdomen: no distension or muscular rigidity, marked tenderness in left hypochondrium, left loin, and over left lower ribs. At intervals of one to three minutes the patient was seized with exacerbations of already severe pain; during these exacerbations, which lasted a few seconds only, the left rectus muscle and left leaf of the diaphragm contracted strongly, the trunk being drawn to the left side. Between the spasms the abdomen was soft, and a small mass, thought to be fæcal, was felt in the region of the descending colon. The rectum was full of fæces and the prostate was moderately enlarged. Chest: increased resonance, weak breath sounds, and absent fremitus and resonance over left lower chest. Apex-beat not displaced. Blood pressure 90/55 mm. Hg. Nervous system: very small pupils; right pupil reacts sluggishly to light, the left not at all; abdominal reflexes absent; very brisk knee- and ankle-jerks; deep pain sensation in calves absent; plantar reflexes "extensor"; some sensory loss over face and chest. Urine: a little albumin and a few pus cells present; blood-urea 117 mg. per 100 c.cm.

Diagnosis.—A small, spontaneous, left-sided pneumothorax, probably due to a ruptured, emphysematous bulla with diaphragmatic pleurisy was diagnosed; the urinary symptoms and signs with a raised blood-urea were attributed to his prostatic enlargement. The nervous signs suggested taboparesis.

Progress.—Until he died, 48 hours later, the patient continued to have left-sided pain, relieved by morphia, with diaphragmatic spasm. The pulse-rate remained between 100 and 120 per minute and the temperature between 99° and 101°. At no time did vomiting occur. The respiration-rate rose steadily, and four hours after admission well-marked signs of a left pneumothorax were present, with shifting of the heart to the opposite side. The left chest was needled on three occasions and three litres of air in all were withdrawn. There was never any clinical evidence of the presence of fluid in the chest, and presumably the fluid found at autopsy had collected at about the time of death.

* This method has been filmed and is in the Kodak Medical Library.

[1] Fenwick, S., and Fenwick, W. S. (1900) Ulcers of Stomach and Duodenum, London.

[2] Hurst, A. F., and Stewart, M. J., Gastric and Duodenal Ulcer, 1929.

Post-mortem examination.—The left chest contained several pints of thick, turbid, blood-stained fluid and the left lung was completely collapsed. High up on the lesser curvature there was a chronic gastric ulcer which had become adherent to the left leaf of the diaphragm. The ulcer had perforated into the left pleural sac, the opening being circular, ¼ in. in diameter. The pericardium was not involved. There were adhesions between the fundus of the stomach, spleen, and diaphragm. No localised or generalised peritonitis was seen.

My thanks are due to Mr. B. W. Williams for allowing me to publish this case, and I am indebted to Dr. J. O. Oliver for particulars of the post-mortem examination.

ADULT PHTHISIS IN A CHILD

BY J. S. COOKSON, M.B. Camb.
ASSISTANT COUNTY MEDICAL OFFICER, HOLLAND, LINCOLNSHIRE

IT is well known that adult phthisis may occur in childhood, but the following case has unusual features which may serve to draw attention to the fact that apparently healthy young persons may have advanced disease.

The child, a girl of 13, was seen at school medical inspection. The disease had given rise to no symptoms, but in view of suspicious physical signs she was referred for observation in the Holland Sanatorium.

On admission on August 31st, 1937, the temperature was 99·0° F. and pulse-rate 96 per minute. She was of fair physique and nutrition, and the only abnormal physical signs elicited were post-tussive crepitations at the apex of the left lung. The sputum however contained tubercle bacilli. The erythrocyte sedimentation rate was 7½ mm. in one hour, 12 mm. in two hours. Radiography showed infiltration throughout the left lung with an area of exudation in the right middle zone.

The interesting features of this case are: (1) the age of the patient; (2) the absence of symptoms, and the paucity of signs considering the extent of the lesion; and (3) the fact that the condition would not have been discovered at this stage without routine medical inspection.

I am indebted to Dr. W. G. Booth, county medical officer of health, for permission to publish this report.

MEDICAL SOCIETIES

MEDICAL SOCIETY OF LONDON

AT a meeting of this society on Oct. 11th Mr. J. E. H. ROBERTS delivered his presidential address on

Sick Nursing: Past, Present, and Future

The nursing of the sick, he said, is a subject of the greatest interest and importance to medical men. The causes of and remedies for the present difficulty in providing trained nurses in adequate numbers had become the subject of much correspondence in the daily press, and the Minister of Health had announced the formation of a Commission to review the whole subject. While the food, the clothing, and the housing of the working man fell far short of the standard attained by the well-to-do, when he was admitted to a voluntary hospital (and this was rapidly becoming true of municipal hospitals also) the working man had at his disposal medical, surgical, and nursing facilities with an immense array of ancillary services which in many ways were superior to those at the disposal of the well-to-do in their own houses or in private nursing-homes. To show that this was not always so, the President outlined the history of nursing from 540 B.C. to the present time, making it clear that as social conditions had altered the type of organised nursing had changed too. At one time what nursing there was was undertaken by professed monks and nuns living mostly in communities, though here and there, as at St. Bartholomew's, the hospital was a separate foundation though staffed by religious nurses under perpetual vows. Later nursing was extended to orders who were not cloistered, and who nursed the sick in their own homes as well as in hospitals. Then, accompanying the increase in population and the rise in the general standard of living and of education, nursing became secularised though still somewhat hedged about with restrictions and with the conception of a vocation still strongly held, especially by the elder nurses.

To-day a still greater revolution in social customs had happened. Woman had everywhere emerged from the home. Innumerable occupations were open to her. The less highly educated went into factories and shops where their hours of freedom were greater than in domestic service. As a result of the consequent shortage of servants, their conditions of service and rates of pay have risen considerably. Families were smaller and occupations in which an educated girl could earn her own living with satisfaction became more numerous every year. In consequence there had been for some years a great shortage of really suitable candidates for the nursing profession. Various attempts had been made to analyse the causes of this shortage and to suggest remedies. The report of THE LANCET Commission issued in 1932 was a very exhaustive one, and gave an admirable review of the whole subject with many weighty recommendations. The continuance of the hospital system and indeed of the health services as a whole was dependent on the supply of a sufficient number of trained nurses and the demand was continuously increasing. For instance the number of nurses employed by the L.C.C. had doubled in the 10 years 1927–37.

CONDITIONS OF TRAINING

The conditions of training and employment of nurses needed to be brought more in harmony with modern social conditions; the changed mental outlook of the modern girl had to be taken into account and the conditions in other occupations which competed for her attention. Of the types of candidate offering themselves for training girls educated up to or beyond school certificate standard were the most desirable recruits; but the President had known admirable nurses who had received their primary education in an elementary school. Nowadays the ladder from elementary to higher schools was not difficult to reach for any girl who was capable of scaling it, and the rest were probably not capable of attaining the standard required for State registration. In any case her education would have to be continued by some means beyond the point reached at 14 before she was fit to begin her training. If a lower grade of "assistant nurse" was to be perpetuated it was from this group that the candidates would largely come. As to tests of preliminary education for nurses aspiring to State registration a candidate

should give proof of having attained a high enough standard of general education to enable her to take advantage of the training; but to demand too high a standard of literary education would involve the loss of many potentially excellent nurses, for it would not only lead to failures in the examination but would deter entrants.

One of the major reasons for the shortage of candidates was said to be the gap between leaving school and entering hospital. At present the probationer received her training in anatomy, physiology, and hygiene while working in the wards. The Association of Headmistresses had said that for girls staying at school courses could be arranged in these subjects if the General Nursing Council would accept them in preparation for the preliminary State examination. Various education authorities had already started courses designed for intending nurses, the one most recently established being that of the Middlesex county council at the Kilburn Polytechnic. There were great advantages in getting this preliminary work out of the way before a girl entered hospital, but no one scheme would meet the needs of all types of candidate. A National College, supported by the State, had been suggested but such a college would have to be split up into many regional units.

The training for the final examination of the General Nursing Council took the form in this country of an apprenticeship combined with instruction by means of lectures, demonstrations, and text-books. Mostly this instruction was given pari passu with the ward work. The "Block" system now under trial provided for three periods of study, each lasting from 3 to 4 weeks, separated by periods of ward work during which little or no theoretical instruction was given. This system involved the need for more nurses, but had the great advantage of allowing the nurse to learn her work when she was feeling fresh and to spend her off-duty time when on ward duty in rest or recreation.

Discussing the extent and nature of the instruction given, the President found no fault with the syllabus but deplored the tendency to demand in the final examination a knowledge of purely medical subjects such as the diagnosis, prognosis, and treatment of disease, though we had not yet reached the standard of some American centres where practical laboratory work, such as the actual performance of differential blood counts, was expected of the student nurse. He concurred heartily with Recommendation XLIV of THE LANCET Commission: "Questions in the final State examinations for all parts of the register should be confined to nursing treatment, and should not involve systematic medicine, surgery, gynæcology, or psychiatry." The provision of special post-graduate diploma courses in both technical and administrative subjects offered scope for the ambitious and more capable nurse. It was improbable that degree courses would be started in this country; such courses must tend to produce women who would not be satisfied to perform only the duties required of the vast bulk of nurses.

CONDITIONS OF WORK

No serious criticism was made of discipline during the hours of duty, but in off-duty hours, though in many hospitals rules had been relaxed, the whole atmosphere of tutelage was still often repellent to the modern girl. Even to-day in most hospitals a nurse could not go out when off duty in the evenings without asking permission. It was odd that a girl to whom responsible work was entrusted in the wards should be considered to become irresponsible the moment her day's duty was over. A hospital was concerned that a nurse should arrive punctually on duty not overtired and in a fit state to carry out her work, but was no more concerned with her private life than a doctor was with that of his secretary. Both had the right to demand that conduct off duty should not bring discredit on the employer. Though most nurses would probably always prefer the communal life and the amenities of the modern nurses' home, some would always value personal freedom more than comfort. To have a proportion of nurses living out would solve the difficulty in many hospitals of finding accommodation for them, and it was probable that in the long run it would not cost more as the number of domestic servants required would also be diminished. The need for reduction of hours of work was exercising the authorities of most hospitals. Nurses seemed to be opposed to the three-shift system, which would simplify many problems though it would necessitate more nurses. Many of the arguments against it were fallacious, for instance that it prevented a patient from being under the care and observation of one nurse; under the present off-duty system a given patient was attended by several nurses in 24 hours. The nursing world disliked the enforcement of rigid rules by legislation, and without legislation hospitals with long working hours would be bound to come into line with those with short ones.

The importance of settling holiday and off-duty times in advance and not altering them at short notice was obvious, since the fear of being unable to make arrangements to meet friends and relatives was another deterrent to entrants. The desirability of raising the salaries of qualified nurses rather than of probationers and of securing interchangeability of superannuation schemes as well as their universal adoption were also emphasised by the President.

The employment of untrained or partly trained women to perform simple nursing duties under the supervision of the trained staff was now widespread in institutions for the chronic infirm, and in some special hospitals and sanatoria where the shortage of trained nurses was most acutely felt. This practice must not be allowed to undermine the hard-won status of a trained nurse and to make it still more difficult than it already is for the public to know whether they are employing a trained nurse when a woman in uniform is sent to them. The British Medical Association had recently suggested that such "nursing assistants" should be given a practical training of two years mainly in wards for the chronic sick, should not be made to pass examinations, but should be given what amount to testimonial letters. They recommended that she should not be formally enrolled or admitted to any form of State register.

The uniform worn by nurses was a survival from the times when nursing was carried out by professed nuns and showed that the nurse of to-day still regards herself as having a vocation, and not merely as a professional woman. It was an anachronism like the copes and chasubles of the ecclesiastics and the costume of the Blue-coat schoolboy, and like them was unsuited to the needs of modern life. It was expensive in washing and in time and worst of all it was insanitary. A nurse on duty took off her starched cuffs, rolled up her sleeves, and then proceeded to make patients' beds, to wash them, to give them bedpans; then she rolled down her sleeves, put on her cuffs, and went away to her dinner in these same clothes. A nurse should on arriving in the ward put on a clean overall, fastening at the back,

with a low collar, and remove it before leaving the ward. In this country it was common for such a costume to be worn by a masseuse, and in other countries it was almost universal.

CONFLICTING INTERESTS

Who was to decide what course to take when so many conflicting interests arose? The lay boards were concerned with administering the funds available, whatever their origin, as economically as possible in the interests of the *patient*. The *matrons* were concerned not only for the patients but also for the nurses; and although they had fought strenuously in the past and still continued to do so for the improvement of the standard of education, of status, and of the conditions of work of the nurse, yet being directly responsible for discipline they were unlikely to suggest such radical changes as might occur to more detached outsiders. The *nurse* spoke through her associations, to the councils of which she in the main elected matrons, ex-matrons, and in some cases lay or medical hospital administrative officers, so that her views as put forward by these bodies came to bear singular likeness to those expressed by the matrons when speaking for themselves. The *doctors* were interested in getting as efficient a nursing service as possible and did not always evince great zeal for economy. They had in the past shown a conservative attitude, and a tendency to put up with things as they are, but became active critics when one of their daughters took to nursing. The *educational authorities* spoke through the headmistresses and local education authorities. The *girls* themselves and their parents did not speak, they acted—by choosing other careers and leaving nursing severely alone. It was only by the pressure of an informed public opinion that action would be taken to attract them to a profession where they were badly needed.

SOUTHAMPTON MEDICAL SOCIETY

AT the opening meeting of the session on Oct. 6th, with Dr. J. H. PENDERED, the president, in the chair, a paper on the

Tobacco Problem

was read by Dr. J. D. ROLLESTON (London), who maintained that the subject of tobacco-smoking should be quite as much a concern of public health as the acute exanthemata, diphtheria, the continued fevers, and other forms of infectious disease—a view which appeared to be gaining ground in Germany, where many public health authorities were of opinion that the damage due to nicotine was as great as that caused by alcohol. In this country, however, the tobacco problem like that of alcohol did not seem to have received any recent recognition in public health circles. Apart from the Society for the Study of Inebriety and Drug Addiction, the subject of smoking, of which the late Prof. W. E. Dixon of Cambridge had said that the medical profession could occupy itself with none more important to the nation, like until recently any aspects of the sexual question, had been taboo in medical societies. Dr. Rolleston dealt with the incidence of smoking in different countries and religious denominations, and drew attention to the prevalence of the habit in school-children on the continent, especially in Holland and Soviet Russia. He was inclined to regard smoking as an addiction, if Dr. E. W. Adams's recent definition of addiction be accepted as "a state of bondage to a masterful drug, manifested by craving, tolerance, intense discomfort of a specialised character on withdrawal of the drug and a tendency to relapse." In a survey of the pathological effects of the tobacco habit, in which he quoted the late Prof. Lewin's statement that "there are hardly any chapters of pathology which are not connected in some way with the abuse of tobacco," Dr. Rolleston pointed out that though little harm was as a rule likely to ensue from a mild degree of smoking, some smokers even of several years' smoking were liable to develop toxic symptoms after only a small amount of tobacco, while a considerable number of tobacco consumers smoked to excess and did not hesitate to confess it. The speaker admitted that addiction to tobacco was often associated with other injurious factors such as alcoholism, syphilis, tuberculosis, and diabetes which might be wholly or in part responsible for various conditions occurring in smokers, but he maintained that there was ample justification for regarding tobacco as responsible for any symptoms which ceased on abstention from smoking and recurred on resumption of the habit. Other subjects discussed in the paper were the causation of the tobacco habit, smoking in hospital wards, tobacco and training, and the foundation in 1926 of the National Society of Non-Smokers numbering over 1300 members with an organ entitled *Clean Air* "for the maintenance of the right of every non-smoker to clean air unpolluted by tobacco smoke, in which to take his or her food, to travel, to do business, or to seek entertainment."

ROYAL MEDICO-CHIRURGICAL SOCIETY OF GLASGOW

AT a meeting of this society on Oct. 1st, with Prof. J. SHAW DUNN in the chair, Mr. G. H. EDINGTON delivered a presidential address on

Embryology and Clinical Surgery

as illustrated in certain congenital lesions in the cephalic and caudal ends of the body. He stated that these lesions arose from embryological faults or departures from the normal course of development. The faults were of different types, and occurred as:

(1) Defect or absence of closure of embryonic clefts. Such deficiencies would result in the fœtus in persistent clefts, or in cysts or fistulæ, all of which might be found in the face, the external ear, or in the external genitals.

(2) Persistence of embryonic pouches (thyroid, branchial) giving rise to cysts or fistulæ in the neck.

(3) Abnormal development of the external ear, exemplified in accessory tragus and in the accessory auricles found in the cheek and in the neck. A further example of abnormal development was found in the lymph system—viz., in cases of cystic hygroma, either the polycystic condition found at birth, or the large multilocular or unilocular "hydroceles" of the neck.

(4) Derangement, in the caudal end of the body, in the complicated processes consequent on the evolution from the embryonic cloacal state. Such derangement resulted in lesions in the external genitals, and in the anal region.

Clinical illustrations of the results of these faults were to be found in such lesions as supra-orbital cyst, buccal cleft (macrostoma), and in the external ear; thyreo-glossal and branchial cysts with or without fistulæ; cervical auricles; irregularities and cysts in the genitoperineal raphe, defective completion of the urethra, and atresia ani with or without abnormally placed external openings. It was essential for a right understanding of such lesions to recall the embryology of the parts. Unfortunately, embryologists sometimes differed a good deal about developmental details. Clinically, however, support should be given to those views that best explained the anatomy of malformations met with in actual practice.

REVIEWS AND NOTICES OF BOOKS

Atlas of Hæmatology

By EDWIN E. OSGOOD, M.A., M.D., Assistant Professor of Medicine and Head of Experimental Medicine, University of Oregon Medical School; and CLARICE M. ASHWORTH, Medical Illustrator, University of Oregon Medical School. San Francisco: J. W. Stacey, Inc.; London: H. K. Lewis and Co. 1937. Pp. 255. 45*s*.

HERE is good news for hæmatologists. A dictator has assumed power and the battle between monists and dualists shall rage no longer. The cells of the blood and of the marrow are now regimented and numbered. In future there will be no need to wonder if a cell is a monoblast or a myeloblast; all the obedient will have to do is to state "the cell resembled cell No. 34 or 44 in the Osgood and Ashworth Atlas of Hæmatology. Hail, Osgood!" As befits the totalitarian state the illustrations in this book are magnificent in size, in colour, and in accuracy of presentation. To prevent further petty bickering over nomenclature some of the old names are discarded, and an entirely new system is introduced. It must be conceded that the philosophy of the hæmatological leader as expressed in the letterpress of his atlas is admirable in its clarity and common sense.

The book is designed to help the physician and medical student to make an accurate hæmatological diagnosis and to enable anyone to learn to identify correctly the cells of the blood and bone-marrow. The first chapter gives the important points to be obtained from the history, physical examination, and laboratory study of patients thought to have disease of the blood, and indicates by a chapter number where to find a detailed description of these conditions. The following nine chapters picture and describe in detail the cells of the blood and marrow. For convenience of reference each cell and its accompanying description is numbered in sequence in bold face type. The last seven chapters discuss the general principles of the diagnosis of hæmatological disorders, and give a concise description of the characteristic picture of each disease. An excellent chapter on the differential diagnosis of sore-throat and stomatitis is included. There appear to be regrettable omissions in the diagrammatic scheme representing the histogenesis of blood-cells, certain characteristic cell types figured in the main text being left out, especially in the erythrocyte pedigree.

While maintaining the right to differ from the dictator all interested in hæmatological problems will want to own this atlas.

Materia Medica, Pharmacy, Pharmacology and Therapeutics

Twenty-third edition. By Sir WILLIAM HALE-WHITE, K.B.E., M.D. Lond., M.D. Dubl., LL.D. Edin., Consulting Physician to Guy's Hospital. Revised by A. H. DOUTHWAITE, M.D., F.R.C.P., Physician to Guy's Hospital, Physician to All Saints' Hospital. London: J. and A. Churchill. 1937. Pp. 562. 10*s*. 6*d*.

IT is easy to understand why this comprehensive work has been popular with the medical student for nearly half a century. In an introductory section pharmacy is briefly but adequately considered, and the doses of preparations are classified in such a way as to make them easy to memorise. The greater part of the book is devoted to pharmacology, which is fully but somewhat dogmatically treated, and to the therapeutic application of the different drugs. By modern standards the amount of information given on pharmacognosy and on details of preparations is rather excessive, and though valuable for reference purposes, this inheritance from previous editions has obviously made it difficult to compress the rapidly increasing sciences of pharmacology and therapeutics into the space available. Thus separate descriptions of all the volatile oils takes up 40 pages of text, while only 16 pages are allocated to the endocrine glands and extracts of stomach and liver, which are now of much greater pharmacological and therapeutic interest. The section on vitamins is also rather poor and takes up only as much space as the unofficial and little used alkaloids aconite and veratrine. Apart from this lack of balance the book can be warmly commended to the practitioner who wishes to bring his pharmacology up to date. It is surprisingly complete, and makes mention of many new drugs such as Cardiazol, Coramine, Protamine insulin, Benzedrine, and Digoxin, which are not always to be found in the indices of larger text-books. A particularly useful feature is a list of 28 barbiturates with their proprietary names and chemical composition. The essential changes brought about by the publication of the Addendum 1936 to the British Pharmacopœia 1932 have been incorporated. A few minor emendations are still necessary. The method here given for the assay of insulin is now obsolete, and the table of alcoholic content of beverages requires revision. To state that whisky contains between 51 and 59 per cent. of alcohol by volume is to mislead the post-war generation.

The Larynx and its Diseases

By CHEVALIER JACKSON, M.D., Sc.D., LL.D., F.A.C.S., Professor of Bronchoscopy and Esophagoscopy; and CHEVALIER L. JACKSON, A.B., M.D., M.Sc. Med., F.A.C.S., Professor of Clinical Bronchoscopy and Esophagoscopy, Temple University, Philadelphia. London: W. B. Saunders Company. 1937. Pp. 555. 35*s*.

THE most notable feature of this book is that it describes the opinions and methods of its authors while taking little account of other workers in this sphere. The work opens with a description of the physiology of the larynx and of the methods of examination; anatomy is not discussed. As might be expected direct laryngoscopy occupies the most prominent place; and the authors have moreover come to the point where they believe that as a rule, to which there are exceptions, both radiological examination and direct laryngoscopy should be done in every case of suspected laryngeal disease. Since the technique of direct laryngoscopy here described involves the help of two trained assistants, it is clear that endoscopy, while of the greatest value in particular cases, is not practicable as a routine method for laryngologists less fortunately situated than are the Jacksons. The senior author has had exceptional opportunities for seeing rare diseases, and his accounts of such uncommon conditions as blastomycosis and of unusual types of neoplasm will be greatly appreciated by laryngologists, especially as many of them are beautifully illustrated. The discussion of some of the commoner affections seems to suffer by comparison, notably that on tuberculous laryngitis, of which only one picture is included. Neurosis is defined as a functional disorder, while any nervous

disorder associated with a demonstrable lesion is termed a neuronosis. Functional, as distinguished from hysterical, aphonia is not mentioned here, but seems to be included in the description of myasthenia laryngis, of which the authors say that they find no mention in the literature. Under the term "acute infective laryngotracheobronchitis in children," a condition is described in which the entire upper air-passages are inflamed. It must be distinguished from laryngeal diphtheria and from broncho-pneumonia; the importance of its recognition lies in the facts that early tracheotomy is often called for and that bronchoscopic removal of thick secretions may be necessary to save life. Even under the best possible conditions not more than 50 per cent. of the children recover.

The last part of the book is occupied by careful and thorough descriptions of endolaryngeal and external operations. Local anæsthesia is recommended both for laryngofissure and for laryngectomy. In the account of laryngofissure the modification devised by the senior author is explained; the cartilage is divided without section of the underlying tissues, so that a growth in the anterior commissure is not cut through; the procedure does not involve tracheotomy. The method of laryngectomy described is that from above downwards through a transverse incision at the level of the thyroid notch.

The book is written in an incisive and dogmatic style, and embodies the extensive experience of an expert of world renown.

Weight Reduction Diet and Dishes

By E. E. CLAXTON, M.B., B.S., D.T.M. & H. London: William Heinemann. 1937. Pp. 199. 8*s*. 6*d*.

Dr. Claxton makes it clear that the basis of all treatment of all types of obesity must be dietetic; and then he proceeds to show that the diet ordered need be neither monotonous nor unpalatable, and that normal food can be enjoyed. The first half of his book deals with the principles of dietetics; the second half consists of tables and recipes. The importance of perseverance with the prescribed diet, and of the avoidance of sugar, sweets, and alcohol in all forms, is emphasised. Substances, such as sauces and condiments, which increase appetite are likewise to be avoided. In advising brisk walks, golf, tennis, rowing, and physical exercises, Dr. Claxton points out that the patient must be careful not to undo the good that the increase in exercise will do by taking more food than is prescribed. Hunger is kept away first by care not to restrict the carbohydrates below 100 g., and secondly by giving bulky articles of food such as salads and green vegetables. Saline aperients should not be allowed since they lead to the consumption of larger amounts of water, making weight reduction more difficult.

The food tables supplied in this book are of the greatest use, and are ingeniously arranged; the food value of 15 biscuits in common use and the same number of cheeses is set out. It is useful to know that two cracknel biscuits represent a lower calorie value than one Vita-Weat biscuit, and that half an ounce of cream cheese provides 71 calories whereas half an ounce of Dutch cheese provides only 39. The notes for the kitchen and recipes in the second part of the book are the work of Lucy Burdekin, who deserves congratulation not only on the excellence of more than 250 recipes but also for such suggestions as orange and lemon ice of no food value, made with water and saccharin. She points out that medicinal liquid paraffin can be used instead of fat, that sugarless jam and marmalade and unsweetened chocolate are easily obtainable from many firms, and that a sugar substitute can be made by grinding kaolin with saccharin.

Both doctor and patient will appreciate the practical information here set out. The dietetic treatment of gross obesity will always fail unless the patient is given printed instructions stating in precise detail what he is to eat. The busy practitioner will seldom take the time to sit down and work out a suitable diet for each individual patient. Instead he gives vague general instructions which the patient does not fully understand and soon ignores. It is time this was altered, and this book points the way.

Out of My Life and Work

By AUGUSTE FOREL. London: George Allen and Unwin. 1937. Pp. 352. 16*s*.

Auguste Forel had a passion for social righteousness, and in a long and very busy life he gave expression to his dominant interest in a variety of directions. He was first and foremost a student of ants, chiefly of their habits and the organisation of their communities, though he did enough systematics to describe about 3000 new forms. He spent twenty years of his active life as the director of a large mental hospital, and partly as neurologist, partly as psychologist and hypnotist tried to make out why mad people behaved as they did. He hated prostitution, and became a leader of teetotalism which he sharply distinguished from "temperance." He must have been an impressive man as he certainly was effective. Unfortunately, at any rate in his old age, he had little art in telling a tale, and this autobiography is not as interesting to read as it might have been. But it is worth an idle hour or two.

Clio Medica

A Series of Primers on the History of Medicine. XIX. *Pathology.* By E. B. KRUMBHAAR, M.D. New York: Paul B. Hoeber (Medical Book Department of Harper Bros.). 1937. Pp. 206. $2.

FOR some years there have been appearing small books in this series on the history of various aspects of medicine. The editor of the series, Dr. Krumbhaar, has now written one on the history of pathology. In textual arrangement it corresponds with previous volumes and covers the whole life story of the subject. Beginning with the theoretical pathology of the ancients and the various schools of pathological philosophy, the rise of morbid anatomy and histology is then followed to its peak in Virchow's concept of cellular pathology, and from this the diverging lines of the modern aspect of the subject are traced. There is far more information in Prof. Krumbhaar's book than in Long's "History of Pathology" which appeared a few years ago, but its two hundred pages are so packed with facts that it is not easy to read. As a separate volume on the history of bacteriology is to appear in this series it is understandable that there should be practically no mention of this subject, but hæmatology and the evolution of technical processes employed in pathology might well have been given more space. There are interesting appendices on the early chairs of pathology and a chronological list of "pathologic milestones" but nothing on paleopathology. For those who want a historical digest of pathology and are not unduly sensitive to American etymology and style this book can be commended.

THE LANCET

LONDON: SATURDAY, OCTOBER 16, 1937

TREATMENT WITH SULPHANILAMIDE

WE publish this week two further contributions to the study of sulphanilamide, one concerning its therapeutic effect and the other illustrating some of its dangers. Experience is mounting rapidly in each of these directions, and in spite of the constantly expanding scope of the remedy, precise indications for its efficient and safe use should soon emerge.

On the side of therapeutic effect interest is concentrated for the moment in a new sphere. The value of sulphanilamide is established for infections by hæmolytic streptococci, for the majority of urinary tract infections, and in meningococcal meningitis. There is experimental evidence that sulphanilamide is bactericidal in vivo for the meningococcus, and it has naturally been hoped that a similar action might be exerted on the closely related gonococcus. As this micro-organism is not pathogenic to animals, experimental test of this possibility has hitherto appeared impracticable; but LEVADITI and VAISMAN[1] now claim to have produced true gonococcal infections in mice by the device, already found of service in work with the meningococcus, of mixing the inoculum with a solution of mucin. In this medium proliferation of the cocci takes place in the peritoneal cavity, and in mice so inoculated the French investigators have found that several compounds closely related to sulphanilamide are in fact of therapeutic value. There is thus some experimental backing for the present attempts to treat gonorrhœa with this drug, as well as the argument by analogy with the meningococcus. One of the earliest reports of success in these attempts was that of DEES and COLSTON,[2] who were much impressed by the efficacy of the treatment and indeed appear to have contemplated its results with astonishment, if not awe. In face of this it was perplexing to read a statement by an English authority on venereal diseases, Dr. ANWYL-DAVIES,[3] that in his experience the treatment was wholly ineffective. Any trial by clinical results, unless these happen to be capable of expression in unusually exact terms, is liable to have a somewhat variable outcome, but so flat a contradiction as this is exceptional. Dr. ANWYL-DAVIES's conclusion was challenged by workers at Guy's Hospital,[4] and the two latest reports are likewise in favour of the treatment. TANT[5] has treated 14 cases in Brussels and obtained complete cessation of discharge in an average period of less than five days. Surg.-Commander CREAN, who describes his results on p. 895, has treated a much larger series and concludes that if the treatment is begun early and the patient is otherwise healthy, sulphanilamide is capable of reducing the usual period of disability from gonorrhœa by two-thirds. Here is reason enough for the even more extensive employment and study of this new remedy in gonorrhœa—a study that will enable us to define more exactly its capacity and limitations.

It was hardly to be expected that so useful and powerful a drug, given in large amounts and often dependent for its effect on the maintenance of a certain concentration in the blood for several days, should never prove toxic. Sulphæmoglobinæmia as a sequel to its administration is now familiar, and we must now recognise that it can also disturb the bone-marrow, since several cases of agranulocytosis apparently due to its use have already been reported. Dr. JENNINGS and Dr. SOUTHWELL-SANDER describe on p. 898 four cases in which alarming cytological changes were produced in the blood, in one an agranulocytosis and in the remainder an anæmia. It is perhaps noteworthy that all these patients—except the one whose anæmia was leuco-erythroblastic in type—were in poor physical condition when the treatment was begun. Several other complications have recently been reported, chiefly in the United States, and the *Journal of the American Medical Association* for Sept. 25th, which is largely devoted to this subject, contains descriptions of cases in which the treatment apparently caused acute hæmolytic anæmia, optic neuritis, and a skin eruption. "Sulphanilamide rash" is also described by SCHWENTKER and GELMAN,[6] and the late fever which accompanies it by HAGEMAN and BLAKE.[7] These manifestations develop on about the seventh day after treatment is begun, and the rash is apparently accentuated by the rays of the sun: some of the patients described in these papers were under treatment for gonorrhœa and were evidently leading normal lives, since the rash followed exposure to the sun on a bathing beach. In such reports there are clues, perhaps, to the avoidance of these complications. It might be going too far to suggest that only patients at rest in bed and under observation should receive this treatment, but on the other hand the old practice of sending a patient away with a week's supply of medicine will not do at all when the medicine is a highly active drug like sulphanilamide—or, we may add, mandelic acid—the effect of which needs to be carefully observed and controlled. It also seems likely that serious trouble is more to be expected in wasted or otherwise debilitated patients, and in these, if not in

[1] Levaditi, C., and Vaisman, A., *Pr. méd.* Sept. 29th, 1937, p. 1371.
[2] Dees, J. E., and Colston, J. A. C., *J. Amer. med. Ass.* 1937, **108**, 1855.
[3] Anwyl-Davies, T., *Brit. med. J.* Sept. 11th, 1937, p. 553.
[4] Erskine, D., Johnson, A. G., and Lloyd, V. E., *Ibid*, Sept. 18th, 1937, p. 598.
[5] Tant, E., *Brux. méd.* Oct. 3rd, 1937, p. 1716.
[6] Schwentker, F. F., and Gelman, S. G., *Bull. Johns Hopk. Hosp.* August 28th, 1937, p. 136.
[7] Hageman, P. O., and Blake, F. G., *J. Amer. med. Ass.* August 28th, 1937, p. 642.

others, blood counts should be done frequently so that marrow damage may be detected at an early stage. Apart from this, idiosyncrasy doubtless exists, and unexpected and unpleasant effects must be encountered from time to time. Since the drug is by no means harmless, it should only be given for clear indications, and these include a definite bacteriological as well as clinical diagnosis. It is doubtful whether the prophylactic use of sulphanilamide after childbirth—now a very common practice—is justifiable in any but exceptional cases where a woman has been exposed to an unusual risk of infection. Finally, the dangers of the treatment might well be reduced by shortening the period of administration. The action of sulphanilamide is to kill bacteria in the body, and after it has achieved this it will do only harm. This curative effect is sometimes secured surprisingly quickly, and the policy of shorter periods of administration, repeated if necessary, might well reduce complications without prejudice to the ultimate result.

THE MEDICAL STATE OF INDIA

THE difficulties that have to be faced by the medical administration in India are much the same as those in any poor country; but the vast size of this subcontinent, with its varied climate and heterogeneous population numbering little short of 400 million, makes them so formidable that they might well engender despair. Nor are these difficulties diminished by the fact that a single senior administrative officer, with one assistant and a small clerical staff, has to do for the whole of India what the Ministry of Health with its vast organisation has to do for Great Britain—a country climatically more or less homogeneous, with a population no bigger than that of one of India's provinces. The central government and the provinces together spend each year only one anna per head of population on public health activities. At the end of the last century the cry in India was for medical relief and for men qualified to provide it. Universities and medical schools were established, and the result to-day is that the supply of doctors, though well below the absolute needs of the country, is in excess of the number who can find reasonable salaries; so that very many are unemployed. Later, at the beginning of this century, the necessity for medical research became more apparent, and some of the best medical brains of the country were directed towards solving the problems presented by the major tropical diseases, such as malaria, cholera, and plague. Though there is still enormous scope for medical research, it has been realised during the last decade that much of the knowledge already gained by medical investigators is not being used to advantage; and in order to lessen the gap between discovery and application a few medical centres have organised post-graduate training in preventive medicine. The number of men with diplomas of public health turned out by these institutions is still remarkably small—there are only a few hundreds—and yet there is so little demand by local bodies for their services that already some are failing to find suitable employment and are turning back to general practice for their living. This is one of the most alarming features of the present situation, and the decentralisation that is now taking place must inevitably exaggerate it. A purely parochial outlook is distressing in most forms of government but it is never more disastrous than in preventive medicine. Interdepartmental jealousies and parsimonies have always been conspicuous in India and unfortunately the heritage is one that will very readily be accepted by the new administrations, especially the local bodies that will become responsible for taking public health measures. To be effective these measures cannot be limited to a small area; the public health outlook must not be provincial, or even national, but world-wide. It is very important therefore that the central health organisation should be strengthened, and it is to be hoped that something corresponding to our own Ministry of Health, and commensurate with the needs of India, will eventually be formed.

The latest report of the public health commissioner[1] Colonel A. J. H. RUSSELL, I.M.S., shows that despite the difficulties steady, if very slow, progress is being made. Almost throughout the country the death-rate is showing a downward tendency and the principal epidemic diseases are being controlled. But this state of affairs, satisfactory as it seems to be, is satisfactory only by comparison, and we need look at the appalling infantile and maternal mortalities to see how much has yet to be achieved. In India 43 per cent. of the total deaths were among children under the age of five, and maternal mortalities ranging up to 130 per 1000 births—the average figure in this country last year was 3·8—are mentioned. The public health commissioner has much to say on the subject of nutrition, but his object is to emphasise its importance, in a land where a large proportion of the population are grossly undernourished, rather than to report actual achievements. He says that "no preventive campaign against malaria, against tuberculosis or against leprosy, no maternity relief or child welfare activities are likely to achieve any great success unless those responsible recognise the vital importance of this factor of defective nutrition and from the very start give it their most serious attention. Abundant supplies of quinine and the multiplication of tuberculosis hospitals, sanatoria, leprosy colonies and maternity and child welfare centres are no doubt desirable, if not essential, but none of these go to the root of the matter." Organised research on nutrition has only just begun in India, but it *has* been started, and during the last two years the foundations of nutrition research laid by Sir ROBERT MCCARRISON have been considerably strengthened by Dr. W. R. AYKROYD and his co-workers. The part that the medical profession can play in the nutrition "drive" is a limited but

[1] Annual Report of the Public Health Commissioner with the Government of India for 1935. Vol. I. Published by the Manager of Publications, Delhi. Pp. 276. Rs. 4.4 or 7s.

a very vital one; for it rests with medicine to show that certain sections of the population are actually suffering from nutritional defects and to propose means by which these can be prevented. However, even this valuable information will achieve little or nothing unless it leads to action, and this depends on the education authorities and the propaganda departments on the one hand and on the agricultural department on the other. Conscious direction as well as good intentions are required if a country like India is to produce—and consume—food in the necessary quantities and with the necessary qualities.

Let us hope at least that medical education in India will not be curtailed just because at present the profession is ill distributed and the majority prefer to remain idle in the large towns rather than migrate to the villages where they are urgently needed but would earn little more than the wage of a poor clerk. In his interesting report to the council of the British Medical Association, of which a summary is given on p. 933, Dr. G. C. ANDERSON sets out the difficulty of getting any grade of qualified practitioner to live in the rural areas, without being able even to suggest a solution of the problem. Furthermore medical research must not be stopped just because in the past full advantage has not been taken of the important discoveries made. But public health organisation throughout the country must be brought into line, so that medicine in India can make a steady advance on a straight front, with its important allies, education and agriculture, on either flank.

FACTORS IN CARCINOGENESIS

WE are accustomed to think of viruses in terms of bacteria, that is to say as living pathogenic agents differing from bacteria mainly by their smaller size but resembling them in their general biological behaviour. Considered as pathogenic agents bacteria are characterised by a high degree of specificity—a given pathogenic bacterium will produce a specific lesion; and viruses—especially the viruses associated with neoplastic diseases—appear to possess a similar specificity, perhaps even of higher degree. Thus the virus of a filtrable fowl sarcoma, on injection into another fowl, will produce not only a sarcoma but a sarcoma of exactly the same histological structure and the same biological behaviour as the one from which the virus was obtained. The rule has been regarded as absolute. It now appears, however, that the reaction of an animal to a certain non-neoplastic virus can be so profoundly modified by preliminary treatment of the animal with a chemical carcinogenic agent that true neoplasms may develop. This observation is recorded on another page in a joint communication by C. H. ANDREWES and C. G. AHLSTRÖM from the National Institute for Medical Research and L. FOULDS and W. E. GYE from the laboratories of the Imperial Cancer Research Fund.

The "infectious fibroma" of Shope has a rather misleading name, at any rate to those accustomed to draw a fundamental distinction between tumours that are essentially inflammatory lesions (classified as granulomata) and true neoplasms. The infectious fibroma is essentially a specific inflammatory reaction to a virus, characterised by the proliferation of fibroblasts which leads to the formation of a tumour. This tumour is localised at the site of infection and resembles histologically a fibroma but differs from it in one important biological feature: unlike a true neoplasm it grows only for a time and then always regresses spontaneously. It is generally accepted that the infectious fibroma is not neoplastic. By the injection of its specific virus into rabbits, which have previously been given an intramuscular injection of tar, ANDREWES and GYE and their co-workers have succeeded in obtaining a graded series of lesions in rabbits, beginning with an infectious fibroma (series IV) and ending with a polymorph-celled sarcoma (series II). It is noteworthy that tar, though known to be carcinogenic for both epithelium and connective tissue of the mouse and the rat, and for the epithelium of the rabbit's skin, has not hitherto been known to produce a sarcoma in rabbits. The experiments were conducted in four series.

In series IV, where the virus was introduced intradermally, the lesions obtained were "infectious fibromata" which still regressed spontaneously but the regression was greatly delayed in the tarred animals. Though the tar was injected intramuscularly, in this series its action was not localised to the site of injection. The next stage is represented by series III where the virus was injected intravenously into tarred rabbits. In this series fibromata appeared but did not regress and a general fibromatosis was produced. The fibroma virus could be recovered from these generalised lesions. A further stage was reached in series I where the virus was localised at the site of injection of the tar, resulting in the formation of a fibromatous tumour which could be transplanted by inoculation of the living cells but could no longer be transmitted by a cell-free extract; that is to say, the virus could not be recovered from the fibroma. The "infectious fibroma" had in the tarred rabbit been transformed into a true neoplastic fibroma. In the last stage (series II), the virus also became localised at the site of the tar injection, and a polymorph-celled sarcoma was obtained which could not be transmitted to other rabbits by cellular transplantation.

What is the interpretation of these findings? The authors' view is that they have produced by a virus, which in a normal animal elicits a non-neoplastic inflammatory lesion in the connective tissue, a true fibroma and a true sarcoma in animals suitably sensitised by preliminary treatment with tar. That the sarcoma could not be transplanted is no argument against its truly neoplastic nature, since the transplantation of spontaneous tumours of undoubtedly malignant nature is not always successful, especially in the larger animals. Successful cellular transplantation is proof of the neoplastic character of a tumour, but an unsuccessful transplantation by no means excludes it. But that is not the major difficulty. One interpretation of these new observations is that the virus is the direct cause of the neoplasms. If this is accepted it would follow that there is no specific virus for neoplasia, but that a virus capable of

eliciting a non-neoplastic proliferation of a certain type of cell can also produce in these cells a neoplastic proliferation, provided that they are in a suitably abnormal functional state. The part played by carcinogenic substances such as tar in the development of malignancy would thus be to bring about in a cell a specific functional state in which the entrance of a virus, non-specific for neoplasia, would elicit the phenomenon of malignancy. But even then the cellular condition would remain at least as important a factor for the ætiology of cancer as the presence of a non-specific virus. The high degree of specificity exhibited by the viruses found in the filtrable tumours of the fowl, to which reference has been made above, would then appear as an additional property imposed upon an originally non-specific virus by the cell into which it has entered and which it has rendered malignant. On the other hand it may be argued that, since the virus could not be recovered from the two neoplasms, there is no conclusive evidence that it was present in the cells of these growths and that, therefore, it cannot be said to have "caused" them. And since tar is known to be a carcinogenic agent it may also be said that the virus has sensitised the connective tissue of the rabbit, normally resistant to the carcinogenic action of tar, to this agent.

At present, then, the meaning of these most interesting results is a problem lending itself to great ingenuity in speculation and dialectic skill. Progress will not be made that way, but only by further experimental work. Can sensitisation to neoplasia by the fibroma virus be brought about by other chemical substances than tar, and if so, is this sensitising property limited to chemical substances which are carcinogenic? Can tar sensitise tissues in such a way that the introduction of viruses, other than the virus of the infectious fibroma, but capable of producing transient non-neoplastic proliferation of certain types of cells, will bring about the formation of true neoplastic growths? These are some of the questions still to be answered. We know already from the work of ROUS and KIDD, quoted by ANDREWES, GYE, and their collaborators as having stimulated their experiments, that the virus of the infectious papilloma, which by itself produces in the skin of rabbits a papillomatous epithelial proliferation, will on intravenous injection into tarred rabbits bring about a fulminating carcinosis at the tarred site.

Whatever the real significance of these ingenious experiments proves to be they are important in opening up a new technique that will certainly lead to a deeper understanding of the factors determining the development of malignancy.

ANNOTATIONS

THE EPIDEMIOLOGY OF TUBERCULOSIS

TUBERCULOSIS is a disease of respectable antiquity. Clearly recognisable descriptions of the pulmonary form are to be found in the writings of the Greek, Roman, and Arabian physicians. But of its quantitative importance as a cause of death we have extremely little idea until very recent times. Even as late as the eighteenth century and the early years of the nineteenth we have only such scanty material as is provided by the death registers maintained by the clergy. It seems likely from these data that the mortality from tuberculosis in urban areas was extremely high. The vital statistical systems of even the most advanced countries do not allow us to go back with any degree of accuracy more than a hundred years, and in the greater number we are limited to some fifty or sixty years. Over this period there has been, with few exceptions (of which Japan is one), a profound decline in the death-rate from tuberculosis, a decline too well known to need remark. The reality of that trend is not in dispute; the causes of it have given rise to much discussion and to some differences in emphasis and interpretation. An interesting analysis of these causes was made by Dr. Georg Wolff of Berlin in some lectures given last week at the London School of Hygiene and Tropical Medicine, in which he ably argued the case for accepting the standard of living as the predominant factor. The involuntary experiment of the war years, and in Germany of the subsequent years of inflation, show that the disease can flare up, given the necessary social conditions. In England and Wales the mortality-rate in 1917–18 was some 20 per cent. above the pre-war rate, in Prussia it was as much as 50–70 per cent. in excess. In England and Wales the rate fell steadily with the cessation of hostilities, in Prussia it again rose—to 12 per cent. above the pre-war years—in 1922–23, the years of inflation. Natural inoculation, Wolff concludes, is far less important than social factors. That densely populated areas show relatively high rates of mortality is also an argument against the importance of immunisation. In London, Berlin, and Paris very close associations between tuberculosis mortality and measures of social well-being have been demonstrated repeatedly, by Wolff himself and others. The effect of housing may, he believes, be exaggerated for in spite of housing scarcity in post-war Germany the rate continued to fall. As a general rule, too, tuberculosis is less rife in highly urbanised states than in agrarian countries. The special occupational and industrial risks are more than offset by the higher standard of living and hygiene of the industrialised countries. Wolff believes that a factor of substantial importance, leading to the same result, is the nearly universal decline in the birth-rate in countries of western civilisation. The reduction in size of family gives a higher family income per head with, in consequence, an improvement in diet and in the general standard of living. According to some German statistics the impoverished middle classes have shown less favourable tuberculosis figures than the lower but socially insured classes. Thus there is a considerable amount of evidence in favour of the social well-being explanation of the trend. But despite the general advance in real wages in the past half-century tuberculosis is still a formidable cause of death. From the point of view of racial biology and political economy it is, Wolff argues with some substance, a more serious evil than cancer; for not only does it take its victims largely in the prime of life but it can, as the war experience shows, assume an epidemic form if conditions of life deteriorate.

RESEARCH ON HORMONES: A REQUEST

Two important papers have lately appeared from Koch of Chicago and his collaborators,[1] on the hormone content of the urine of men and women in health and disease, and in our last issue we published a paper by Kemp and Pedersen-Bjergaard of Copenhagen dealing with the fate of injected œstrone, and incidentally with the œstrogen excretion of ovariectomised women. This week, on p. 902, Dr. Parkes reviews the significance of these and similar observations in relation to the source of the androgenic and œstrogenic material found in normal urine. The facts at present available lead to the conclusion that at least a part of the substances that give œstrogenic and androgenic activity to the urine are derived from the adrenals, and may therefore not be of diagnostic value in relation to the gonads. The extent to which this generalisation can be applied to particular types of cases, and the extent to which the various complications can be overcome, clearly depends on the results obtained in further work. It is obviously of high importance to accelerate such work, but progress here requires coöperation, since the laboratory worker is dependent on the clinician for supplies of appropriate urine, collected under conditions which preserve its initial properties and activities. Dr. Parkes's review indicates the practical significance of a research superficially so academic as the study of the excretion of "gonadal" hormones by eunuchs and ovariectomised women, and we hope that clinicians who are able to assist this research in the manner requested will not hesitate to communicate with Dr. Callow.

AN IMPROVED TANNIC ACID TREATMENT FOR BURNS

THE aim of the tannic acid treatment of burns is the production of a tightly adherent, rather rigid crust over the burnt surface. Whether it is correct to regard toxic absorption or profuse loss of serum as the main factor in collapse and death from burns, the formation of this firm crust seems to be the most effective method yet devised of decreasing mortality. While accepting the value of the tannic acid treatment, Bernard Fantus and H. A. Dyniewicz[2] draw attention to several disadvantages of the simple tannic acid solution, and recommend a solution with important modifications. The three most obvious defects of tannic acid are that its solution is unstable, that it lacks antiseptic power, and that it is not isotonic. The solution recommended by Fantus and Dyniewicz is a 10 per cent. solution of tannic acid, to which is added potassium chloride 0·42 part, calcium chloride 0·84 part, and sodium chloride 10·50 parts per thousand, and salicylic acid 1 part per thousand. The result is a 10 per cent. solution of tannic acid in Ringer's solution, with addition of salicylic acid. They claim that this solution keeps well, does not grow fungus, produces a dense coagulum, and has a bacteriostatic action which is absent from the plain tannic acid solution. The strength has been chosen after careful experiment on the action in vitro on defibrinated dog's blood of various strengths of tannic acid. Precipitation of the defibrinated blood was most marked with a 10 per cent. solution. The higher concentrations are known to be more stable and to have antiseptic action. The use of Ringer's solution as the vehicle for a solution to be applied directly to a large raw area has a theoretical appeal; actually it was shown that such a vehicle increased the precipitating action of the tannic acid. The purpose of the salicylic acid is twofold: it preserves the solution by inhibiting the growth of moulds, and it is antiseptic. One drop of the solution in the centre of a culture of *Staphylococcus aureus* on a Petri dish gave a definite halo of inhibited growth. Other antiseptics might be used, but salicylic acid is non-toxic, and this is an important consideration in an application designed for burnt surfaces. Fantus and Dyniewicz do not recommend the neutralisation of the acid, for they have found that precipitation of defibrinated blood is more pronounced at the normal *p*H of the tannic acid solution. The application, by means of cotton swabs, of a 10 per cent. solution of silver nitrate to the crust formed by the tannic acid is a further protection against bacterial action. Blebs occurring in the first 12 to 24 hours are treated as for the first application.

A. G. Bettman[3] also recommends the application of silver nitrate to the burn, immediately after the tannic acid. The result, he says, is a much more rapidly formed coagulum, which at once stops leakage of plasma and is more supple than the ordinary tan, and the tendency to infection is much reduced. The technique is simple and the silver is said to do no harm.

ONYALAI

A DISEASE characterised by the sudden onset of bleeding from blood-filled bullæ forming in relation to mucous surfaces occurs in various parts of Africa under different native names, the most widespread of which is onyalai. Dr. Blackie[4] has collected the information available about this interesting condition and has added to it his own careful laboratory studies of a group of typical cases. The disease develops suddenly; it is most common among young adults, especially in robust subjects, but children are not immune. Cases occur at all times of the year and there is no evidence that the disease is either infectious or contagious. Dietary deficiency has been suggested as an ætiological factor but no evidence on this point is available. Prodromal symptoms include malaise, headache, and pain in the chest and bones. The temperature usually rises though not dramatically. Fatal cases show a persistent subnormal temperature. Bleeding follows within 4–6 hours, usually from nose and mouth, and also from the renal and gastro-intestinal tracts; while there may be bleeding into the brain. The bleeding is due to the formation of hæmorrhagic bullæ which vary in size.

Physical signs of broncho-pneumonia, probably attributable to the formation of small hæmorrhagic areas, may be found in the lung. Some patients recover rapidly and show only a mild hypochromic anæmia; others finally die from hæmorrhage or have a prolonged convalescence. Laboratory examination has shown severe degrees of orthochromic anæmia with little sign of blood regeneration until convalescence. The white cells are hardly affected. Platelets are greatly reduced and bleeding time is prolonged; coagulation time is normal. What evidence is available suggests that capillary resistance is reduced. The most effective line of treatment was introduced by Dr. R. M. Morris in 1926 and consists in the intramuscular injection of 18 c.cm. of donor's blood in 2 c.cm. of 10 per cent.

[1] Gallagher, T. F., Peterson, D. H., Dorfman, R. I., Kenyon, A. T., and Koch, F. C., *J. clin. Invest.* September, 1937, p. 695; Kenyon, Gallagher, Peterson, Dorfman, and Koch, *Ibid*, p. 705.
[2] *J. Amer. med. Ass.* July 17th, 1937, p. 200.
[3] *Ibid*, 1937, **108**, 1490.
[4] Blackie, W. K., *Trans. R. Soc. trop. Med. Hyg.* 1937, **31**, 207.

sodium citrate. The total number of injections varies from case to case; in moderate attacks two are sufficient, in more severe attacks five or six injections may be necessary. Blood transfusion is rarely necessary. At autopsy hæmorrhages into different organs and into all cavities present a striking picture. Dr. Blackie concludes that onyalai must be classed among the purpuras showing a quantitative deficiency of platelets, but suggests that there is also some defect in the capillary endothelium. The occurrence of bullæ, the recovery following small intramuscular injections of blood, and the relatively acute nature of the condition which apparently does not recur in the same patient, all present interesting differences from idiopathic thrombocytopenic purpura seen among white races. Dr. Blackie has raised absorbing new problems for the hæmatologist.

AN ORTHOPÆDIC COLONY

DURING the past year the new Silver Jubilee treatment centre at the Treloar Cripples' Home and College, Alton, has been completed and occupied which will afford greatly increased facilities, and a new X ray department is now in full working order. In his annual report Sir Henry Gauvain records a decrease in bone and joint tuberculosis, but a relative increase in the glandular forms, possibly due to better diagnosis. Conservative treatment of surgical tuberculosis is still the method of choice, but operative correction of deformities is increasingly employed when the active stages of the disease are over. Work among non-tuberculous cases increases both in variety and quantity. The hospital now serves ten outpatient clinics in London, Hampshire, and the Isle of Wight where children with orthopædic and postural defects detected at welfare centres, at school medical inspections, or by private practitioners may be sent for advice before serious deformity or disability has developed, and where they may receive treatment by suitable exercises and be provided with apparatus where required. The danger of epidemics is always present in such a hospital population, but routine immunisation of patients and staff against diphtheria has reduced the incidence of this disease to an occasional mild case. A small outbreak of dysentery due to Sonne's bacillus of unknown origin occurred in the Portsmouth block in May, 1936, but precautionary measures were successful in limiting its spread. This type of dysentery is probably not uncommon in the country in general, though usually unrecognised, and a small proportion of cases no doubt remain carriers of the organism long after the attack, usually a mild one, is forgotten.

AUSTRALIAN WORK ON CANCER

THE eighth Australian cancer conference, of which a report has reached us, was held in Canberra last April and was attended by medical and scientific representatives from all parts of the Commonwealth. On the recommendation of the previous conference the Commonwealth Government had set up in September, 1936, a National Health and Medical Research Council. An annual sum of £30,000 has been suggested for the purpose of establishing a permanent and reliable system of medical research. The further recommendation to appoint an Australian Cancer Commission was not acted upon, although there are many indications that a lively interest is being taken officially by Australia in the subject of cancer. This is reflected not only in far-reaching public action but in certain recent publications. Dr. C. E. Eddy, physicist in charge of the Commonwealth X ray and radium laboratory at Melbourne, has with the help of Mr. T. H. Oddie prepared for the health department a booklet entitled Physical Aspects of Radium and Radon Therapy, intended more especially for the use of radiotherapists and officers of local physical services. Within 60 pages an extremely good account is given of the general physics of the substances and radiations used in radiotherapy, together with an account of the many precautions necessary in using them. The advantages and drawbacks of radium and radon, from both technical and dosage points of view, are clearly described.

PIRQUET OR MANTOUX?

WHILE in theory medicine is independent of geographical boundaries, certain national preferences tend to persist. The Pirquet test is preferred by the French and the Norwegians, the Mantoux test by the Swedes and the Danes. The inability of such close neighbours as the Danes and the Norwegians to agree over this matter is seemingly the more paradoxical for their possession of many common denominators such as language and scientific standards. Dr. O. Scheel[1] of the Oslo Ullevaal Hospital has recently drawn attention to a common mistake committed when the Mantoux test is accepted as the standard by which to examine the Pirquet test. For if both tests are on trial, to set up one as the judge of the other is absurd. Dr. Scheel has tried to avoid this difficulty by the introduction of a third factor, radiological evidence, in the light of which both tests can be judged impartially. He has compared the radiological findings in 1697 students with the Pirquet and Mantoux findings in the same material, and he has grouped the students according as the reactions to the two tests were negative or positive in varying degrees, and according as a radiological examination showed (1) only pleural changes, (2) lung shadows, or (3) shadows indicative of calcification in lung or hilus. One of the many conclusions to which he comes from this study is that the Pirquet test is quite reliable in disclosing past tuberculous infections of a character to provoke radiologically demonstrable lesions in the chest, whereas the Mantoux test, when positive, is apt to indicate a non-existent infection. To supplement his statistical argument by an illustrative example, Dr. Scheel records the case of an Ullevaal probationer who was Pirquet-negative on two occasions but who gave a positive Mantoux reaction to the intracutaneous injection of 1 mg. of tuberculin. The facts that she subsequently developed erythema nodosum and a high sedimentation-rate, as well as becoming strongly Pirquet-positive, are interpreted by Dr. Scheel as signs of a primary tuberculous infection which had taken place after the probationer had given a positive reaction to the Mantoux test.

In Denmark, where only about 60 per cent. of Mantoux-positive persons give a positive reaction to the Pirquet test, students of the Copenhagen University have for some three years been tested with the Mantoux reaction, up to 1 mg. of international standard tuberculin being injected. All the positive Mantoux reactors were radiologically examined, a suspect finding on screening being an indication for radiography. Dr. J. Holm,[2] who gives an account of these examinations, states that they dealt with 1608 medical students, 1192 of whom proved to be Mantoux-positive. Among these positive reactors were 1161 in whose lungs nothing radiologically

[1] *Nord. med. Tidskr.* 1937, **13**, 761.
[2] *Ibid*, 1937, **14**, 1456.

abnormal could be found. During an observation period of 1554 years none of these 1161 students developed pulmonary tuberculosis. On the other hand, among the 416 originally Mantoux-negative students observed over a period of 683 years there were as many as 19 who developed pulmonary tuberculosis. Dr. Holm concludes that all the 1192 Mantoux-positive students must actually have already been infected with tubercle bacilli, for otherwise some of them would surely have subsequently developed pulmonary tuberculosis in the period under review to judge by the fate overtaking the 19 above-mentioned students. It is to be hoped that this controversy over the respective merits of the two tests will promote further investigations which will not only decide the question at issue but also throw new side-lights on the whole problem of tuberculin reactions.

GOATS, COWS, AND ABORTION

FROM time to time, at meetings of learned societies and in the medical press, the question is asked: What justification is there for the belief of many of the older farmers that a goat running with a herd of cows protects them from abortion? The answers have been numerous, varied, and unsatisfying. Scientific workers have generally looked for an immunological explanation. It has been supposed that *Brucella melitensis*, which causes natural infection in the goat, is able to immunise cows against *Brucella abortus*, which is the organism chiefly responsible for contagious abortion. Though ingenious and superficially attractive, this explanation will not hold water. In the first place goats in this country have never yet been found to be infected with *Br. melitensis*; and in the second place numerous observations have shown that *Br. melitensis*, so far from being harmless to cattle, often sets up in them a very active infection, sometimes accompanied by abortion and by excretion of the organisms in the milk. An explanation of quite a different character has recently been put forward in the correspondence columns of the *Times*. It has been pointed out that certain weeds, such as ragwort, the autumnal hawkbit, and woody nightshade, which are poisonous to cows and are supposed at times to cause abortion, are non-poisonous to sheep and goats. It is suggested that these latter animals, whether from preference or from their habit of feeding in certain situations, eat up these plants before the cows can get at them. This explanation, even if correct, can apply only to non-contagious abortion which, so far as our present knowledge goes, constitutes but a small proportion of the total amount of abortion among cows in Great Britain. It follows that the protection afforded by the goat is likely to be local and sporadic rather than widespread and frequent. For this reason it is unlikely to be observed by more than a relatively few farmers. Perhaps this is why so many of them disbelieve in it.

DEVELOPMENT OF TOOTH GERMS IN VITRO

AMONG the papers read at the annual meeting of the British Dental Association at Cambridge last August, there was one by Miss Shirley Glasstone describing the growth of tooth germs in vitro.[1] Her work was done at the Strangeways Research Laboratory and this is, we believe, the first successful attempt to grow tooth germs artificially. Molar and incisor teeth from mammalian embryos were dissected out under sterile conditions and grown in the same way as other tissue cultures. These explanted teeth continue to develop both histologically and morphologically. Where molar tooth germs have been explanted before cusp-formation has begun, deep cusps form which are approximately normal in size, number, and arrangement. The pulp cells differentiate into odontoblasts and deposit dentine and the ameloblasts show the beginning of enamel-formation. It has long been believed that the shape of teeth is determined by the enamel epithelium and that even in animals in which enamel is normally absent, such as the edentata, tooth-formation depends on the presence of specialised epithelium. This is borne out by the result of Miss Glasstone's work. In cultures where the dentine is formed in contact with the epithelium it is deposited in a regular sheet; but in the absence of epithelium the odontoblasts merely give rise to irregular bands of dentine. Further, the odontoblasts differentiate in vitro only in the presence of ameloblasts. If, for instance, in an explant devoid of epithelium the original odontoblasts degenerate, they are not replaced by any further differentiation of pulp cells. This suggests that the enamel epithelium exerts some influence on the pulp tissue. In addition to this work Miss Glasstone has collaborated with Prof. R. Robison, F.R.S., of the Lister Institute, in a study of the calcifying mechanism in normal embryonic teeth. They have obtained evidence that the process of the calcification of dentine is similar to that of bone. Early embryonic teeth of rats and rabbits have a high phosphatase activity equal to that of embryonic bones. Even more interesting is the fact that uncalcified dentine can be partly calcified by immersion in salt solutions like those that effect calcification of hypertrophic cartilage and osteoid tissue.

Miss Glasstone is to be congratulated on her successful application of tissue culture methods to tooth germs. They seem likely to help us with some of the unsolved problems of tooth development and calcification.

SPANISH REFUGEES

THE number of refugees so far evacuated from northern Spain exceeds 100,000. Of these Great Britain has accepted 4000 children on condition that they are wholly maintained by private subscription. The French Government is at present supporting about 50,000, and the conditions under which they live have lately been described by Commander H. Pursey, R.N.[1] When the first refugees arrived it was possible to find them suitable quarters near the coast, but later this was out of the question, and now there are nearly a thousand camps and centres scattered all over France. The cost of feeding is borne by the French Republic, which allows 20 francs for an adult and 7 francs for a child per day; but the other expenses fall on local, mainly voluntary, funds, "and the supply of such requirements as clothes depends on whether local organisations and people are sympathetic to the refugees or not." In August the Government of France announced that it could not undertake to provide for any more refugees, and could accept them only for transit to other countries. In practice this almost always means transit to Government Spain, and as immigration from Gijon and other Asturian ports continues France is pouring refugees by thousands into Catalonia over the only remaining safe railway line at Puigcerda. The number of homeless people who have already found refuge in Catalonia—mostly

[1] *Brit. dent. J.* Sept. 15th, 1937.

[1] *Manchester Guardian*, Sept. 30th, 1937, p. 11.

from Madrid and the south—is variously estimated at between half a million and "nearly a million,"[2] and as the food situation in Madrid is deteriorating, this extra population is likely to increase. An appendix to Dr. Ellis and Dr. Russell's report gives details of particular camps and houses where these people are living: they include such sentences as "the condition here as regards food, clothing and housing could hardly be worse"; "very short of blankets—no winter clothes and shoes"; "nutrition appalling, especially of children—thin, pale, wizened, dirty, ragged clothing, broken canvas shoes." All this is the by-product of war, and the question must arise in many minds whether the League of Nations organisation could not be used to mitigate the suffering it has so far failed to prevent. "There is some possibility," we are told,[2] "of the formation of an international relief scheme organised through the League," and we have no doubt that if the will were there the League instrument could usefully be employed to this end.

"MEDICINE TODAY AND TOMORROW"

ON Tuesday appeared the first number of the official organ of the Socialist Medical Association; it is to appear monthly and offers expression to all forms of progressive thought. This issue contains an excellent article on the municipal hospitals of London with a suggestion for the development of out-patient departments, without which it must be impossible to run them economically and efficiently. Mr. F. Le Gros Clark deals with the malnutrition controversy, posing the twin questions: can we conceive of a rational food policy for the nation? shall the distribution of certain essential foodstuffs be made a public service? Dr. D. S. Greig describes the enterprising Bermondsey film unit at work. There are two pages of medical news of the world; "from our own correspondents" it is headed, but not all of these, perhaps, reside in the country of which they write. The correspondence columns are to be an absolutely open platform, and a critical letter addressed personally to the editor (Dr. D. Stark Murray) is an earnest of this intention. In the near future will appear a series of articles on the medical service of the future. The policy of the journal is summed up in the hope expressed at the end of the leading article, that it may be of some assistance in shaping the medical system of to-day into a better and more complete system. *Medicine Today and Tomorrow* is published from 5, Johnson's-court, London, E.C.4; the subscription price is 5*s.* a year, post free (single copies 4*d.*).

THE EXPERIENCED BENEFACTOR

THERE are three ways of giving: one is to present a large capital sum for buildings and leave to the recipients the embarrassment of finding means for staffing and maintenance. This is a primitive method adopted by those who have little experience of the anxieties such a gift may entail, and has led to white elephants in more than one community. It is perhaps from vision out of disillusionment arising from such gifts that there has been born a more cautious way of giving now often adopted by private benefactors as well as by central governments anxious to stimulate the activities of local ones—the offer of a gift on condition that a similar sum is raised from other sources. This has the disadvantage of presupposing that the vision of the recipients is as clear and their perception of the benefits to be obtained as acute as that of the donor, and this is not always so. There remains a third way—an expensive one it is true—but carrying no other apparent disadvantage. It is this way that Lord Nuffield has chosen at Oxford. Starting with the million pounds—and more—devoted to the fostering of post-graduate medical research, he is himself adding to this gift as it becomes clear what is needed fully to implement his original purpose. One of the doubts that has been expressed on the wisdom of his choice of Oxford rather than a larger centre for the original endowment was concerned with the paucity of hospital accommodation in the surrounding district. The critics have been confounded. We have already recorded a series of additional gifts to local hospitals, and during last week it was announced that Lord Nuffield had given £300,000 to the Radcliffe Infirmary and the hospital associated with it to form an endowment fund, the income from which will go towards raising the standard of hospital services in the district. The trustees of the endowment fund will include the chairman, vice-chairman, and secretary of the Joint Hospitals Board. As we go to press comes the further announcement of a donation of £200,000 to the University of Oxford to be applied to meeting or contributing to (1) certain costs already incurred by the University in the erection of hospital buildings; and (2) the cost of erection of any further buildings required at any hospitals solely or partly by reason of their association with the scheme for the development of the school of medicine. The buildings actually specified as being among those to be paid for include two new wards at the Radcliffe Infirmary (for the use in the first instance of the Nuffield professors of surgery and obstetrics and gynæcology), together with operating and X ray theatres and office accommodation, and a new wing of the maternity home. This clinical benefaction is one of three new ones, all designed still further to extend the facilities for study available for the University of Oxford. £100,000 is given to the erection and equipment of a new laboratory of physical chemistry, and a million pounds is offered for the building and endowment of a new graduate college to be devoted to the collaboration, particularly in social studies, of theoretical students and practical men of affairs.

Sir JOHN MOORE, doyen of the medical profession in Ireland, died in Dublin on Tuesday at the age of nearly 92. Sometime professor of the practice of medicine at the Royal College of Surgeons in Ireland he had been president of the Royal College of Physicians of Ireland and of the Royal Academy of Medicine in Ireland.

THREE national prizes for art and science were offered to Germans this year by their Government in place of the Nobel prizes which they are no longer allowed to accept. The second of these prizes for 1937 has been divided between Geheimrat August Bier and Staatsrat Ferdinand Sauerbruch, both professors of surgery in the University of Berlin. Each will receive 50,000 RM.

THE London Medical Exhibition—the 25th of the series—will be held in the new hall of the Royal Horticultural Society, Westminster, from Monday to Friday of next week. Admission is confined to the medical profession and is by ticket only. The exhibition is open each day from 11 to 6.30. The organisers state that a large number of substances, preparations, and instruments are being exhibited for the first time.

[2] Bulletin of National Joint Committee for Spanish Relief, October, 1937.

OPENING OF THE MEDICAL SCHOOLS

OUR last issue contained extracts from four inaugural addresses given at London medical schools at the beginning of the winter session. The following are taken from addresses since delivered at Newcastle-upon-Tyne by Lord Eustace Percy, at the Birmingham medical school by Prof. Leiper, and at the Royal Dental Hospital, London, by Sir Cuthbert Wallace. Lord Eustace Percy spoke as first rector of King's College, newly formed by the amalgamation of Armstrong College with the College of Medicine, Newcastle.

MEDICINE AND GOVERNMENT

BY LORD EUSTACE PERCY, P.C., LL.D.
RECTOR OF KING'S COLLEGE, UNIVERSITY OF DURHAM

I KNOW little of medical science, but as an ex-politician with some experience of the Ministry of Health and a fairly large experience of the Board of Education, I do know something of what I may call medical politics. I know what doctors think of statesmen—but most of that is scarcely quotable. I know, too, what statesmen owe to doctors and (more important) what they expect from doctors—and it is on that subject that I should like to say a few words. For these expectations seem likely to affect profoundly the future of the medical profession.

Already, within the lifetime of a man of fifty (which happens to be my age) the profession has undergone almost a social revolution. I was twenty months old when (as I have subsequently learned) the Pasteur Institute was opened by the President of the French Republic; my school years coincided with the culminating researches of Ross in India and of Reid and Agramonte in Cuba; I went to Oxford in the year that General Gorgas was appointed medical administrator of the Panama Canal Zone. In those first seventeen years of my life the researches of two generations had, it seemed, suddenly borne fruit; scientific knowledge had been transmuted into social power. As the physician's knowledge had grown, as his attention had been increasingly directed, not merely to the cure, but to the prevention of disease, his social function had changed. The family adviser had become suddenly a State counsellor; he had been called on to formulate State policies and to administer great communities. Moreover, great communities had learnt to put money at his disposal. The foundation of the Rockefeller Institute in 1901, and the appropriations of the American Congress to medical administration in Panama and the insular possessions of the United States, gave the physician for the first time command of resources on a scale hitherto enjoyed only by the manufacturer and the soldier.

And this was only the beginning of the social revolution. These earlier victories of preventive medicine were won by the physician in the field of tropical disease, on the outposts of European civilisation, over fantastic enemies either unknown to Western Europe or already driven out by improved sanitation, quarantine services, and a rising standard of living. To the ordinary Englishman bubonic plague was only a creepy story of the distant past, yellow fever only a soldier's tale brought back from garrison duty in the West Indies, malaria an extinct ague of which curious survivals might be found in some local pockets of marshland, even cholera only a nightmare of his father's youth. But since then research has been pushing its way from the abnormal to the normal. The microbe-hunters have found a new quarry in the vitamin; the psychologist will measure the ordinary citizen's intelligence, the physiologist will chart his metabolism, with as much assurance as the medieval astrologer used to cast his horoscope; medical science has begun to talk, not merely of preventing disease, but of raising normal human health and normal human activity to an altogether higher power.

The politician has followed this lead—both the democratic politician on the look-out for new election programmes and the dictator following his dream of a new German nation or a new Marxian humanity. The focus of social reform has shifted from the drain-pipe and the sanatorium to the gymnasium and the dinner table. At this very moment it is hardly an exaggeration to say that the chief plank in our Government's domestic programme is a mammoth publicity campaign, launched with the sole object of advertising the doctor as the saviour of society—and incidentally, of course, the Government itself as the doctor's chief patron.

Obviously this exaltation of the medical profession has its dangers. It will always be true, even of doctors, that "the expert should be on tap and not on top." It will always be difficult "to talk with crowds and keep your virtue"—especially, perhaps, for the man of science. Nothing is more exasperating to such a man than to hear his provisional hypotheses broadcast to the public as if they were a ready-made gospel, his carefully guarded statements quoted without qualifications for political purposes. On the other hand, nothing can be more intoxicating. Like cheers at a public meeting, such publicity may sweep the most honest of us off his feet and goad him to exaggerate truth into falsehood.

But it is, after all, useless to dwell on these dangers. The new responsibilities of the medical profession are inevitable. If new, they were not unforeseen. Not long before the epoch-making event of my birth Huxley had predicted that medicine would become the most important of the social sciences, the focus and interpreter of all the rest. That is what is happening in our day. And surely we could not wish it to be otherwise—especially we who work and learn here on Tyneside. In such a region, the need for the physician's leadership is evident enough and it is for such leadership that a great university school of medicine like this must consciously train its students.

And this brings me to what I have had in mind to say to you who are matriculating to-day.

This new call to the medical profession is not a call away from the old traditions of the profession. On the contrary, it is, as I see it, a call to realise afresh what those traditions are, and to bring them to bear with new force upon the public life of this nation. It is because the doctor is what he has been that the world is asking for his leadership.

The call is first and foremost a call to the medical practitioner. The world does not want to be led by research workers, still less by medical journalists. Research is vital in all forms of human endeavour, and above all in medicine; but what is even more vital to-day, because it is more neglected, is the application of research. In industry, the time-lag between laboratory discovery and intelligent application by the works manager is often enormous; in medicine it tends perhaps to be even greater. Research

is not specifically the business of the doctor; his specific business is to supply to the laboratory worker the field data of unsolved problems and to apply the results of research. For that purpose he must know, so to speak, the geography of research and he must know how to value its results: the difference between hypothesis and proof, the difference between a successful laboratory experiment and the successful treatment of a human being, the difference between both and successful health legislation for a whole population. Above all, he must be trained to grasp eagerly at new knowledge, whether (may I say it?) the discoverer possesses a medical degree or not. But all this will not make him a good doctor. Unlike all other scientists, his skill consists in the advice he gives to the individual human being who comes to him for help. That is the test of his success or failure; that, and that alone, is his qualification for social leadership.

In fact, the whole accumulating results of physiological and of social research are but driving home two truths which the general practitioner has always known: that the treatment of a patient must be treatment of the whole man, and that hardly any patient can be treated solely as an individual, without consideration of his environment and his associations. The wise doctor has always known that his field of diagnosis cannot be narrower than the family, that his treatment must vary with his patient's wife and children, with his work and wages, with his character and even with his religion. How often must he diagnose diseases like hyper-infantitis (as exemplified by the Old Woman who lived in a Shoe) or conjugal boredom (as described by Canning in the lines:—

"Yet must one man with one unceasing wife
Play the long rubber of connubial life.")

Two-thirds of his advice has always been based, not on scientific knowledge, but on pure human judgment: when to let a restless patient get out of bed, when a devoted nursing daughter has got on her mother's nerves, and so on. It is because the doctor's human judgment has been thus exercised in a way unknown to the pure scientist or the economist or the philosopher that the ordinary citizen like myself has been able to regard his medical adviser as his personal friend; it is for the same reason alone that the doctor is qualified to advise on and to administer social policy.

And in at least one respect his training is superior to that of the politician. Human judgment is the good politician's essential weapon, but he can never be certain whether his judgment on any particular issue has been right or wrong. He is dealing with too many uncertain factors; even when he fails most signally he may have done the best in the circumstances. No doubt that is true also of the doctor, but not in the same degree. Over and over again the best doctor has suffered defeat when he knows afterwards that he might have won a victory. That experience gives a man the one supreme qualification for governing men: the quality of humility. True, by no means all doctors are humble; like other men they sometimes talk great nonsense; but it ought to take a bigger dose of natural toughness to make a cocksure doctor than to make a cocksure politician.

But, if these have been the traditions of the medical profession, how are they to be preserved to-day? That is the great question of medical education. In many ways, modern organisation must make it more difficult to train the medical student's judgment. Increasingly he studies the sick man in the hospital, knowing little, if anything, of his character, his family, or his means of livelihood. Increasingly, when he enters on practice, he finds himself applying to a stream of panel patients the methods of the hospital out-patients' department. How is medical education to counteract these tendencies? As such education rightly becomes more scientific, more a training in technical skill and in the command of immense reserves of technical equipment, how is it to teach the student to be a human counsellor?

I am not qualified to answer that question; I can only suggest the thought to you who are entering upon that education. It is the most arduous course of training that a man can undertake. You will for years be immersed in drudgery: learning the geography of vast territories of human knowledge, mastering an enormous accumulation of facts, acquiring systematic habits of thought, high technical skill, and the faculty of quick decision. All this is essential to your power of rendering effective service in the future, either to your individual patient or to the State. Yet all will be useless, unless you can go out into the field of practice with a power of human understanding fortified, but not harshened, by your scientific knowledge. To-day when we talk so much of human rights and social equality, it is well to remember that a man's first and fundamental right is to be treated as an individual, that the greatest social inequality is the poor man's lack of privacy. If I were a manual wage-earner, I think the disability which would irk me most would be the difficulty of getting the busy poor man's doctor to tell me explicitly what is the matter with me and what are my chances of recovery. Therefore the call to you as future social scientists is the same as the call to you as personal advisers, but even more insistent: get knowledge, but above all things, get understanding. Remember that, in the words of Sir Philip Sidney, one of the best definitions of learning is the "enabling of judgment."

MEDICAL CAREERS IN THE TROPICS

By R. T. Leiper, M.D., D.Sc., F.R.C.P., F.R.S.

WILLIAM JULIEN COURTAULD PROFESSOR OF HELMINTHOLOGY IN THE UNIVERSITY OF LONDON

It is natural, and indeed inevitable, that most medical graduates should seek to make their future careers in this country; either in general practice or in whole-time medical service under the State in one form or another. If I may use a motoring simile they take the broad trunk road and they have their security. But while its surface is smooth it is becoming increasingly crowded, the pace is slower, and the journey more monotonous and exasperating. There are, however, secondary roads and by-paths which, leading to the same destination, enable one to make a quieter journey and enjoy a wider horizon. As it has been my lot to make my own professional life's journey along one of these by-paths of medicine, I should like to tell you something about it. Although in recent years it has become a good secondary road, it has increased, rather than lost, its original attraction; for the road has become smoother and the prospects widened. This is the road which runs through the tropics.

It is necessary first to stress the fact that nowadays overseas work is no hazardous adventure. The amenities of life in the tropics have greatly improved. Indeed medical science has transformed them during the last quarter of a century. "White man's grave" is an almost forgotten epithet for West Africa. No

longer do families assist their relatives with passages there in the hope that they will soon cease from troubling.

The type of Englishman acceptable to-day in our sphere of life in the tropics is the good all-round man with a sound body, a sound mind, and a good record—a good mixer of the social, not the alcoholic type. For persons with poor nervous outfits, the tropical climate and environment are particularly unsuited.

With the general improvement of health conditions, vast areas in the tropics have been developed and Europe is drawing from them ever-increasing quantities of foodstuffs and raw materials. The capital invested for these purposes must be enormous, and the leaders of industry now realise that the best method of conserving their interests in these regions lies in the prevention of disease. Consequently a rapidly growing demand for medical men is coming from the great industrial concerns as well as from colonial governments. The men who take up these appointments are given greater responsibilities and greater opportunities of acquiring medical experience at an earlier age than at home, while the financial outlook is, to say the least, certainly not less favourable. Some of you have probably felt that you have a flair for surgery, but have realised how beset with difficulties is the fulfilment of such an ambition in this country. In the tropics, minor and major surgery may be said to be a matter of almost every-day routine, and there are many occasions on which the doctor has necessarily to embrace all the specialties. I quote the following from a recent address by Sir Frank Powell Connor on "The Surgical Aspects of Tropical Disease." In India a morning's work might well include:

> "Fifteen to twenty eye operations (mostly cataract extractions), two herniotomies, and perhaps a hydrocele or elephantiasis scroti, an amputation or sequestrotomy, one or more abdominal sections, a litholapaxy, and half a dozen short operations for abscess, cellulitis, &c."

In the tropics there is the usual surgery of temperate countries, but in addition there are many complications due to tropical environment and diseases, to the effects of heat, of flies and dust, and of biting insects.

For those, however, to whom the strenuous life of a surgeon does not make an appeal, there is the more ordinary life of the district medical officer, or of the officer in charge of a tea or rubber estate; where he is responsible with the nursing and other subordinate staff for the health of say 40 to 70 Europeans and a labour force of from 5000 to 15,000. His work is varied, for the ordinary diseases met with at home occur, as well as those peculiar to the tropics, and he has, also, to organise the practical application of measures for the control of malaria, ankylostomiasis, and other preventable diseases, and to supervise the maintenance of water-supplies and conservancy. Whatever may be the special nature of their appointment and duties opportunities for research are open to all, for there are many diseases still awaiting investigation and, fortunately, their solution, in many cases, does not require that elaborate equipment which is now considered necessary for research at home.

Of this essential difference between research methods into disease at home and in the tropics I was not aware when I first went to the Gold Coast in 1905, and I still recall with a sense of humiliation that I brought back, unopened, a large number of the cases of scientific equipment which I took out with me on that occasion.

It is still possible to select from among the outstanding problems in tropical medicine some which can be solved in a corner of a bungalow in a tropical out-station; not as a part of one's official duties but solely as a subject of personal scientific interest. In such a way, and under similar circumstances did Manson, as a private practitioner, in Amoy in China, and Ronald Ross, as a member of the medical service in India, solve two of the fundamental problems of tropical disease, and there are other notable examples.

Having outlined generally the nature of medical work overseas, you will expect me to say something more specifically about the opportunities and life there.

THE OPPORTUNITIES

There are five main types of medical service in the tropics:—

(1) The Indian Medical Service;
(2) the Colonial Medical Service;
(3) independent private practice;
(4) subsidised private practice; and
(5) medical service with big commercial and industrial corporations—which we may call the Unofficial Medical Service.

Of the *Indian Medical Service* I propose to say little. In the past it was probably the greatest medical service in the world, and many are the famous names in its records. It still holds out great opportunities, but the imminent changes in the form of government in India are bound to react seriously on the prospects and work of English entrants in the near future. Moreover, a large number of Indians are seeking medical qualifications in this country with a view to civil medical employment in their own country. There seems every probability that the Indian Medical Service will become more and more a purely military service.

But while the medical prospects are diminishing in India, those in the colonial possessions of the Crown are rapidly widening and becoming increasingly attractive. There is every likelihood that before long the Colonial Medical Service will be generally recognised as the premier medical service overseas.

Until recently colonial governments had their own independent medical services, but these have now been unified as one *Colonial Medical Service*, with headquarters at the Colonial Office in London. To-day its staff of medical officers numbers over 1000; all of whom have been recruited in this country. Its members, with their own consent, may be transferred or promoted from one colony to another. Men are encouraged to specialise and facilities are given for study-leave at home, to enable them to acquire higher qualifications.

In the larger colonies the service has three main branches: medical, public health, and laboratory. In many of the bigger centres in these colonies there are well-equipped hospitals with fine wards, fine operating-rooms, and an excellent nursing service. To many there are attached medical schools, and the training of native auxiliary staffs is an important part of the local medical officer's duties. In smaller centres the hospitals are necessarily less well equipped, and in remote places are still primitive but are steadily improving. In Ceylon, Hong-Kong, Malaya, Fiji, Uganda, and Nigeria, the medical schools issue diplomas to practise medicine, while recently the General Medical Council has recognised those in Hong-Kong and Ceylon and their diplomas are registrable in this country.

The great discoveries which have already been made as to the mode of transmission and prevention

of most of the important tropical diseases have provided a scientific basis for their control or eradication, and there are now in the Colonial Medical Service a large number of specialist posts in public health. Time only permits me to mention, without elaboration, the success which has attended the efforts of these public health specialists in reducing the incidence of malaria, yellow fever, ankylostomiasis, plague, and sleeping-sickness, which formerly took so heavy a toll of life.

There are, moreover, highly equipped laboratories in many of these colonies, staffed by whole-time research workers selected from the Colonial Medical Service. In the Malay States there is the Institute for Medical Research at Kuala Lumpur, while in Africa there are magnificent laboratories at Nairobi and Lagos, and at Dar-es-Salaam one in which Robert Koch worked for some time.

In the Colonial Medical Service the basic salary, as a rule, is from £600 to £700 rising to £1000; with promotion to super-scale posts, of which the highest paid to-day is that of director of medical services in Nigeria, which carries a salary of £2000 per annum. All appointments are pensionable, and the retiral age in West Africa is 50 and in East Africa 55. In most cases free furnished quarters are provided and free return passages are given to officers and wives for purposes of leave in this country.

Quite recently the Medical Research Council, in conjunction with the Colonial Office, initiated a scheme of medical scholarships for tropical research, which, I believe, will in years to come develop into a great Imperial Research Service. Fortunate are those who, casting their bread on the waters, are about to pioneer this latest by-path in medicine.

There are opportunities for *independent private practice* in many of the larger towns in the tropics. This type of medical work has advantages and disadvantages similar to those of private practice at home. The life is strenuous but the financial compensations are greater—at least they have been so in the past. Many of these private practitioners have been among the ablest men in our profession. Manson was for many years a private practitioner in China. As in India, however, fully qualified native practitioners are now competing with the European practitioner in most of our colonies and this competition is likely to affect the English private practitioner in the tropics in an increasing degree.

There is another type of practice in the tropics—it is really a *subsidised practice*. The Europeans in a district guarantee the medical officer a small sum annually and establish him in a centre, and he charges fees to subscribing members on an agreed scale. He may treat non-members at a higher fee. Such practices are sometimes worth between £2000 and £3000 annually.

I now come to *medical service under the great industrial companies* which operate in the tropics. Permanent and semi-permanent employment is to be found on tea estates and rubber plantations, on oil-fields and mines. Medical officers are also required temporarily on large engineering works such as the building of bridges, barrages, and hydro-electric schemes. The construction of these may occupy two or three years and give employment to 20 to 200 European officials and from 5000 to 6000 native labourers. Obviously the climatic conditions under which such great undertakings are carried out are such that their completion is entirely dependent on the maintenance of the health of the workers.

You are all familiar with the historical disaster which overwhelmed the French attempts to build the Panama Canal at a time when the mode of prevention of malaria and yellow fever was unknown, and the no less remarkable success which attended the later American effort, based on the application of recently acquired knowledge. Yellow fever was completely wiped out, and malaria was reduced by 95 per cent. Since then there have been many similar, although less well known, triumphs within the British Empire. One recent example must suffice.

When the Cleveland Bridge and Engineering Company accepted the contract to build over the Lower Zambesi the largest railway bridge in the world, they were aware that Dr. Livingstone, at the conclusion of his first great African exploration, had described the region of the Lower Zambesi as perhaps the most malarious he had ever seen. They therefore took special care to combat this disease, and the efforts of their medical staff were so successful that in the three and a half years during which the bridge was under construction there were only six cases of malaria, and the number of days off duty amounted only to nineteen.

In these positions of enhanced responsibility with important commercial undertakings the less competent members of our profession, who in the early days filled many of them, are no longer wanted. The British Medical Association has carefully studied the position of these unofficial services recently and has, with the coöperation of some of the principal industrial concerns, drawn up a model form of agreement, as a guide both to employers and to medical men in arranging their contracts. The Ross Institute of Tropical Hygiene in London is now the centre to which industries in the tropics generally send inquiries for their medical officers, and it is through that institute that medical men, wishing to go overseas, apply for these appointments. The Ross Institute follows their careers with close attention, welcomes them when they come home on leave, and uses all its powers to forward their interests and to help them in their work. Unsatisfactory men are being weeded out. The standard required and the conditions of service offered are steadily being raised.

These appointments are period contracts, but the conditions of service are now in many respects equal to those enjoyed under colonial governments. The contracts are renewable but the security of tenure is, in practice, a sound one; for the great industrial companies know the risk of losing a good man who is familiar with their interests. Although these posts are not pensionable the salaries are higher, and the chances of having a home in the same district for a long period are often greater than in government service. Moreover, a man is not restrained by pension rights from changing to another place or from returning home if he should so desire. There is a continual demand for able men, and to some the sense of independence, which a temporary renewable contract gives, is one of its attractions. The average commencing salary is about £1000 per annum, with a free bungalow, often with electric light and water-supply, and with certain allowances. The contract is usually for three or four years, with leave on full pay for at least six months at the end of each term, in addition to local leave. Some of the more senior men are paid anything from £2000 to £3000 a year. Sometimes there is an allowance for one or two servants. Car transport is provided, or an allowance is made to the man who keeps his own car. First-class passages are given both ways.

Sir Malcolm Watson, director of the Ross Institute, to whom I am indebted for these particulars assures me that, in the Middle East, if a man lives quietly

and reasonably, he and his wife can live on half the initial salary; and that in Africa, where the opportunities of spending money are fewer, the relative saving is greater. In Africa too, for climatic reasons, these contracts usually run for periods of from twelve to fifteen months, with three months' leave on full pay at the end of each contract.

THE LIFE

So much then for the professional aspects. But what of life in these tropical lands?

Strangely enough, it is the fear of heat and not of disease which is often the chief deterrent from a tropical career. Yet I personally know of no one who has left the tropics on that account. The summer heat of London can be more trying than that of Central Africa, where dress and mode of living are more suitably adjusted to climatic conditions.

Even in small communities games and amusements are organised, and there is far more frequent and general participation in them than at home; for there is a pressing sense of need to compensate for enforced banishment and the severance of home ties. Usually there are tennis and golf and in many places cricket, football, hockey, polo, and racing. The club, with its rooms for billiards, cards, and dancing, is the chief social centre. Dinner provides more frequent occasions for the exchange of hospitality than here. Wireless brings news and music; open-air cinemas are springing up in many places. If there is abundant rain or where water is available, a garden can be made as deeply satisfying as at home. In many districts there are opportunities for sport and in some for big game shooting. In all these social activities the doctor shares as fully as the other members of the community. He has few night calls and work ceases early, for the afternoons are hot and night falls suddenly at, or soon after, six o'clock.

But if these English pastimes become the sole relaxation they are merely anodynes. There are many serious interests with which to fill leisure hours. All around are strange and fascinating subjects for study: local dialects, customs and legends, native medical lore, bird watching for European migrants, and other aspects of fauna and flora. Perhaps more fascinating than these: native psychology, and the effects of the impact of European civilisation upon it, with all its unplombable potentialities. If in the past there had been better understanding of native motives, many errors, involving heavy loss of European and native life, misunderstanding, and bitterness could have been avoided.

* * *

I have not, I hope, painted too rosy, if superficial, a picture or suggested a life entirely without trial or adventure. Trials and adventures there are, but it is significant that most of those who enter upon it make it their life's work. In closing I cannot do better than quote a tribute, written by A. C. Hastings on his retirement, after many years of service in Nigeria:—

> "So to that life and work I bid good-bye with much regret. It holds for me, as such lives must, memories both good and bad, pain and pleasure, failure and success. But on the whole it leaves a sense of right good times, and I commend the country to the new generation. For all who like a life of freedom, the open air, responsible work and a feeling of individuality, which life in a crowd can never give, there is no better place than this to find it."

For my own part, recollections of my journeys in the tropics are the happiest of memories.

THE FUNCTION OF A MEDICAL SCHOOL

By Sir Cuthbert Wallace, K.C.M.G., C.B.
PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND

What is the function of a university, a college, or school? Most of you would probably answer "To grant a degree." But its chief function is, not to grant a degree, but to give an education. If it has given a good education the granting of degrees is only a horrible necessity forced on it by students who want a hall-mark to go into the world to sell.

The function of a university is to give a good education. What is a good education? That depends on what faculty is embraced; it also depends largely on the students you have to educate.

My experience at St. Thomas's led me to divide students into three classes. The first are "fliers," the intellectual giants, who form a class by themselves. The next is the average man, the sort of democracy of medicine and surgery, those people who take a serious view of their profession and view it as something more than a mere means of getting bread-and-butter and bacon for breakfast. The last class is a diminishing number, and perhaps one may regret they are diminishing, though probably officially deans would not endorse that. They are the people who drift along with the stream, and often get stranded in the stream. They are amiable, often extremely nice people, and are rather a social asset in a community. I know of one who went down to fame because he hit W. G. Grace three times for four. As they are a diminishing number we have to think of the other two classes. Nobody need trouble about the fliers, they will educate themselves; they will win through, no matter what happens. With regard to the ordinary kind of fellow, what is the best for him? I would sum up by saying: Give him plenty of opportunities of learning, in contrast to actual teaching, and those opportunities are the feature of our London system; I mean the contact between senior student and junior student, and between junior student and junior student. It brings us back to the saying of an old St. Thomas's man who rose high in the world of pathology, "I have learned much more from talking to students on the terrace of St. Thomas's Hospital than I ever learned in the classroom"; and there is an extraordinary amount of truth in that. One student can help another tremendously.

Another thing which vexes deans is the question of lectures. If I were to ask those in this gathering who like lectures to hold up their hands, I wonder what would happen. I do not know, but it is a perennial subject, and it is still being discussed. From one you will hear that lectures are no good; yet sometimes they come back into favour. What is the reason for this difference of opinion? First it must be granted that the man knows how to lecture, that he does not read out of a text-book, that he knows how to deal with the subject. I think the difference of opinion arises from the fact that there are two classes of mind: one man can learn through a book, for what he reads will stick; others can read for an evening, but on closing the book he will forget what it was all about. I know one good example of that. But another friend never forgot anything he read. The fact is there are two kinds of mind; one learns best from books, another from lectures and demonstrations. If a man thinks he can benefit from hearing lectures, by all means let him attend them; if a man

does not benefit from them, let him stay away—and he is probably quite a wise man.

We are hearing a great deal about research, sometimes one gets rather tired of the word. Every educational body should set itself out to find something to hand down to the next generation. It is true to say that a school is a good school if there is an atmosphere of inquiry about it, in other words, of research. Where shall we get these researchers? They will come from the Class 1 which I mentioned, and a certain number from Class 2. The man you want to encourage is he who sees a problem and can then plan out means of solving it. That is the kind of individual it is the duty of a school to seek out and give every opportunity to. I am distrustful of the man who goes to his teacher and says, "Professor, give me something to research on." To be of value, research must be a spontaneous matter.

I see it is said in your prospectus that dental surgery is a part of medicine; I am very glad to see that, because obviously it is, and I do not see why dentistry should be separated off from medicine, any more than laryngology. Both need special instruments and a special technique. If a man comes straight from school to a medical school he rubs shoulders with nobody except the man who is doing medicine. If that is true of general medicine, it must be worse in the case of a specialty. And how much better would it be if, in London, instead of having hostels confined to medical students, they could be thrown open to those of other faculties. This would broaden their education.

POST-GRADUATE LECTURES

THIS week we continue our series of abstracts of some of the post-graduate lectures lately delivered at the London teaching hospitals. Mr. Handfield-Jones's was given at St. Mary's and Dr. Clausen's at Charing Cross Hospital.

RECENT ADVANCES IN PROSTATIC SURGERY

(MR. R. M. HANDFIELD-JONES)

SOME five years ago I had the privilege of addressing you on this same subject. My excuse for returning to it is the very remarkable advances that are being made in this branch of surgery. The Freyer operation of suprapubic enucleation with subsequent drainage remained unchallenged and even unquestioned for many years. Thomson-Walker's plea for visual inspection of the prostatic bed and the ligature of the bleeding points caused some discussion at the time but gained surprisingly few adherents. During the last seven years our attention has been directed to certain methods which obviate suprapubic drainage of the bladder.

Let me remind you of the pathological anatomy of the senile hypertrophy of the prostate. Intrinsically this benign process is of no more importance than a fibro-adenoma of the female breast, but it gains its sinister reputation because, by causing chronic urinary obstruction, it endangers renal function. It rarely occurs before 55 years and the majority of our patients are over 65. Such patients cannot be regarded as the most favourable surgical material and we must necessarily be prepared to face anxieties and dangers in the removal of an enlarged prostate. It is in the attempt to overcome those risks, which are subject to our control, that progress is being made to-day.

Let us analyse the dangers of enucleation. Advancing years bring with them certain general risks concerned with the cardiovascular system and the lungs, but it is the condition of the urinary tract which brings us our special anxieties in this disease. Renal function is slowly and insidiously damaged by prolonged chronic obstruction and this process becomes both rapid and serious as soon as infection supervenes. It can hardly be denied that enucleation with suprapubic drainage is contrary to the best canons of surgical practice, the prostate being shelled out with the finger with no visual inspection of the operative field, little or no attempt being made to obviate or control hæmorrhage, and drainage being established at the top of the bladder instead of at its lowest part. In those patients who had escaped urinary infection prior to operation suprapubic drainage inevitably led to post-operative sepsis. Nevertheless if the poor type of surgical material be considered the results were surprisingly good; but assuredly not so good as to be incapable of improvement not only in the mortality but in the length and the discomfort of the convalescence.

Recent advances in technique have been directed to the control of hæmorrhage and the avoidance of suprapubic drainage, but before I pass on to describe these methods let me make clear to you all the very great importance of assessing the suitability of each individual patient for the different operations available and the methods by which this is done. A general physical examination will guide us in our choice of anæsthetic and may forbid any but palliative treatment; an examination of the urine reveals the presence and to some extent the degree of the infection; and finally the estimation of the blood-urea provides us with the most important indication of renal efficiency.

You will recall that, in the operation of enucleation with suprapubic drainage, we divided our patients into two groups, those who were safe for a one-stage operation and the others who needed a period of suprapubic drainage before the enucleation was considered safe. To-day suprapubic drainage will be called for only in the worst cases, in which the blood-urea is over 150 mg. per 100 c.cm. and the urine is heavily infected or in which the patient has not responded to other measures. The safety of the patient and the complete success of the new methods require that the blood-urea be under 60 mg. *and* that there be only a trace of infection present. Few cases of this disease present themselves in this happy state; how then are they to be made fit? For suprapubic drainage we have substituted the in-dwelling catheter, the largest tolerated by the patient being tied in and constant drainage established. If necessary the bladder is irrigated daily with silver nitrate (1 in 10,000) and an intense diuresis is produced by giving ten pints of fluid in the 24 hours. Blood-urea readings are done on alternate days until the conditions are favourable for operation.

THE HARRIS OPERATION

Under spinal or general anæsthesia the bladder is opened suprapubically by a median subumbilical incision, which must give adequate access. The prostate is enucleated in the ordinary way, after which a three-bladed illuminated retractor is inserted and

the bladder is freed from clot. A long roll of gauze is packed tightly into the prostatic bed and firmly compressed for three minutes. On its removal a great deal of the oozing will have ceased but two arteries will be seen spurting on the postero-lateral rim of the prostatic cavity at about four and eight o'clock. These are immediately picked with long fine forceps and under-run with fine catgut. Morson's anterior retractor is then introduced, the prostatic bed is perfectly illuminated and visualised, and the trigonal flap stitch is inserted. A full-sized catheter is now inserted through the urethra by the assistant and made to project into the bladder cavity passing in front of the trigonal flap. A second stitch approximates the lateral margins of the rim in front of the catheter. The base of the bladder has now been practically re-formed and no raw area can be seen from above. The catheter is transfixed by a silk-worm-gut stitch, each end of which is brought through the bladder wall and the anterior abdominal wall and fixed by lead buttons about 1 in. on each side of the incision. The bladder wall is closed with the utmost care with two layers of catgut and the abdominal wall closed with a small wick of rubber tissue into the cave of Retzius.

Constant drainage is maintained through the catheter for seven days after which time it is removed. Normal micturition should be re-established immediately and there should be no leakage from the wound. The stitches are removed on the tenth day and the patient is allowed up, the wound healing by first intention.

I admit that I have been careful in my choice of cases, being anxious that a good method should not (as is so often the case) fall into disrepute owing to defective judgment in the classification of the type of patient. On two occasions the catheter has been pulled out by the patient during the first night; in one it was easily replaced but in the other a tube had to be inserted into the bladder above the pubis. Five borderline cases with blood-urea over 100 mg. failed to respond to catheter drainage and had to have suprapubic drainage. But otherwise all my patients have resumed normal micturition between the seventh and tenth days and their post-operative confinement to bed has not been more than 10 days. This method marks a new and great advance and the Harris operation is unquestionably the operation of choice in all patients who are considered from both general and urinary aspects suitable for a one-stage operation.

TRANSURETHRAL RESECTION

This method demands a high degree of experience and efficiency in the manipulation of endovesical electrical instruments. The resectoscope comprises an illuminated optical system giving direct vision into the bladder and a platinum loop activated by a current of high oscillation, the whole enclosed in a bakelite sheath. The intravesical projection and that part of the lateral lobes proximal to the ejaculatory ducts are removed piecemeal by a series of cuts with the platinum loops, the object being to remove sufficient tissue to restore the calibre of the normal urethra and so to overcome all chronic urinary obstruction. In a more recent modification of the instruments the cutting is done by a cold circular metal punch, the diathermy current being used for hæmostasis only. Transurethral resection is the ideal procedure for carcinoma and may be substituted for Harris's operation in those patients whose general condition forbids the more extensive operation. The after-treatment is similar to that in the Harris operation, except that the catheter can be removed as early as the fifth day, and, there being no external operation trauma, the patient can get up immediately after the catheter is out. There is, however, a period of many days and possibly four weeks in which micturition is not entirely normal, a certain degree of frequency and smarting pain being present till the desiccated area is healed. It seems to me unfortunate that a tendency is appearing amongst English urologists to become exclusively resectionists or "Harrisites"; each method has its own advantages, and the interests of our patients can best be served by the skilful selection of cases.

The Steinach II operation of ligature of the efferent ducts between the body of the testis and the globus major of the epididymis on both sides at first appeared to merit extensive trial; but though it seems to relieve symptoms I think we may accept the evidence that such improvement is merely transient. I have no time to discuss the recent work on endocrine therapy in connexion with the relief of symptoms nor do I think that we have yet sufficient information on this subject. Nevertheless I believe I have shown you to-day that the treatment of senile hypertrophy of the prostate has undergone definite improvement and that we need not personally look forward to its possible occurrence with the same degree of apprehension as in the past.

BASAL ANÆSTHESIA

(DR. R. J. CLAUSEN)

A LITTLE over ten years ago Avertin was introduced as a hypnotic. It was then tried as a surgical anæsthetic, with considerable success, but the large doses employed often caused alarming depression of the respiratory and other systems, with occasional fatalities.

The claims made for it were then modified and the expression "basal anæsthesia" was coined, indicating a state of unconsciousness, produced by a non-volatile agent, which should serve as a base upon which a complete anæsthesia could be built up by the addition of a volatile agent; at the present time the term is also used to indicate an anæsthesia produced solely by injection.

The advantages of basal anæsthesia are well known; the patient goes to sleep in bed in ordinary comfort, and with no more interference than a rectal or hypodermic injection, and wakes some hours later in the same familiar surroundings. The amount of inhalation anæsthetic required is greatly reduced, and many operations can be carried out under gas-oxygen. During the period of after-sleep the pains of operation will have lost their most acute edge, and inhalation anæsthetics will have been largely eliminated. The return to consciousness should be gradual and comfortable, and free from nausea or vomiting.

It is only natural that such a glowing picture should have a gloomier side, and the patient may purchase the luxury of basal anæsthesia at the price of increased risk. Powerful drugs are employed, whose effects cannot be rapidly controlled as can those of an inhalation anæsthetic. A dose injected into a vein is irrecoverable, and though the amount required may be judged by slow injection and close observation, the patient's recovery depends on his ability to destroy and eliminate the drug. Equally accurate dosage is impossible when an amount based on body-weight is injected rectally, and though, in the event of untoward symptoms, it may be possible to withdraw some, it is probable that by then most will have been absorbed. Here again the most that can be

done is to maintain the functions of circulation and respiration, pending elimination.

Basal anæsthesia cannot be used in ambulatory cases. After full doses the deep sleep may entail extra work and responsibility upon nursing staffs; on the other hand, restlessness amounting to violence may occur during recovery, when pain elicits a response but the higher functions of reason and control have not returned.

It is well to bear in mind the strictures that some authorities have passed on the barbiturates. Some of this series that are used intravenously can cause pulmonary œdema if injected too quickly, and can aggravate existing inflammation of the lungs. Prolonged depression of respiration may increase the liability to pneumonia through hypoventilation and congestion. Recently published figures show a definite increase in lung complications after basal anæsthesia. Finally, the possibility of serious individual idiosyncrasy is always present.

Another aspect of the question is the ethical one, and I would like to quote from a recent number of the *Times* an extract from the annual report of a medical officer of health, referring to dental treatment of children. After saying that the dentist's chair provided a test of courage and character, and complaining of the timidity and bad behaviour of many children, he said: "Education of juveniles might be extended to provide harsher physical and moral training, so that artificial mitigation of physical and mental anguish at dental sittings might be reduced." This point of view may appear reactionary to some, but must be equally applicable to surgery, and I would like to express my agreement. I have been struck by the lurid picture of the horrors of surgery, painted by some advocates of basal anæsthesia, and by the deplorable attitude of healthy young adults of either sex towards the relatively trivial ordeal of ordinary anæsthesia. In contrast, I remember meeting in a home a candidate for prostatectomy the following morning. Nothing had been said about premedication, but as I was leaving he remarked: "You won't dope me too much to-morrow, will you; I want to walk to the theatre myself." This praiseworthy attitude is only likely to be met with now in elderly persons.

Basal anæsthesia is not to be lightly or routinely ordered, but individual care and attention should be given. The same drugs can of course be given in modified dosage to produce any lighter degree of hypnosis desired, with corresponding increase in safety. As an alternative I would call to mind the value of the old-established and well-known opiates, alone or in combination. A simple and common routine dose is one-sixth of a grain of morphine with one-hundredth of a grain of atropine. More efficacious is the widely used "Hyoscine Compound A," containing gr. 1/100 hyoscine, gr. 1/6 morphia and gr. 1/180 atropine, or the omnopon-scopolamine combination of gr. 1/3 and gr. 1/150 respectively. These doses are for average adults, and must be modified according to age, general condition, and illness. Young children should not receive opiates, though they often need a relatively high dosage of the basal anæsthetics, and in old persons they must be used with caution.

I wish to give a particular warning against the combination of opiates with basal anæsthetics in unfavourable cases, owing to the powerful combined action of the two depressants.

THE BASAL ANÆSTHETICS IN COMMON USE

Avertin is put up in solution, each cubic centimetre of which contains one gramme of the drug. The 2½ per cent. solution is usually prepared shortly before use, by briskly shaking the measured dose in the necessary amount of distilled water, which should be between 35° and 40° C. Overheating leads to dangerous decomposition, and reheating after cooling is not allowed. The solution may be kept for twelve hours at body temperature, and must be tested with Congo red for free acid before use. The makers supply a table of quantities required for given weights.

The average dose is 0·1 c.cm. for each kilogramme of body-weight, which should give about two hours' sleep. It may be reduced to 0·05 or less in the old and feeble, and increased up to 0·15 for cases of goitre with a high metabolic rate, if in otherwise good condition, for the highly strung and nervous, and perhaps for children, though the makers say that in the latter 0·1 should not be exceeded. The solution is run into the rectum with a funnel, tube, and rubber catheter, about half an hour before operation, sleep usually coming on in about ten minutes. If an inhalation anæsthetic is to follow, atropine is usually given, and in suitable cases a small dose of morphia also, but with caution and due regard to the patient's condition.

Avertin is contra-indicated in inflammation of, or operations on, the large intestine; in the presence of very low blood pressure or basal metabolic rate; if a brisk return of consciousness is required; and in cases of gross disease or derangement of liver or kidneys, since it is broken down in the liver and excreted by the kidneys.

Rectal *paraldehyde* has been used for a good many years, but has now largely been superseded by avertin. It is given in dosage of one drachm for each stone of body-weight, at least up to eight stone, either in 10 per cent. solution in saline, or dissolved in a small amount of liquid paraffin. Objections are the bulk of the saline solution, the unpleasant smell, and the possibility of idiosyncrasy.

The series of hypnotics derived from barbituric acid has been much developed in recent years, the newer compounds usually having a more intensive action of shorter duration.

Of the older, slower, group, *Somnifaine* and *Sodium Amytal* are little if ever used in this country now in surgery, but Nembutal and Pernocton survive.

Nembutal is supplied in capsules of ½ and 1½ grains each. A useful adult dose is gr. 1½ the night before, and gr. 3 about an hour and a half before operation, to which may be added a small dose of morphine. In very nervous persons it may be well to give the morphine first, otherwise apprehension may lead to retention of the nembutal in the stomach with delayed absorption. When combined with morphia in this way, one capsule often gives a good result. Small children do not take the bulky capsules readily, and often object strongly to rectal injections. They will usually take the nembutal as powder, in milk, or syrup flavoured with orange. At three to five years' old they may have gr. ¾ to 1, at five to seven, gr. 1 to 2, and up to gr. 3 at fifteen. Morphia should not be given, but atropine is usually desirable.

Nembutal is also supplied in capsules of 0·5 gramme or 7½ grains, for intravenous injection, but is not so much used in this way as formerly. It is dissolved in 10 c.cm. distilled water before use, and injected at a rate not exceeding 1 c.cm. per minute. An average adult dose 5 to 7 c.cm.

Pernocton is very similar to nembutal in its effects, but has the advantage that it is put up in solution ready for use. The ampoules contain 2·2 c.cm. of the 10 per cent. solution, of which adults require from 3 to 5 c.cm., sometimes more. The rate of injection must not exceed 1 c.cm. per minute.

Two other compounds are put up in capsules for oral use, and resemble nembutal in their effects—namely, *Soneryl* and *Hebaral*. Another, more recently introduced, is more rapid and short-acting; it is known as *Seconal*, and should not be given more than half an hour before operation. A homologue of pernocton, made for rectal administration only, is called *Rectidon*. The solution is ready for use, and is injected with a syringe and catheter in dosage increasing from 1 c.cm. at one year to 8 or 9 c.cm. for adults.

The latest members of the barbiturate group are Evipan, Eunarcon, and Pentothal, all of which are used intravenously for induction, for basal anæsthesia, for short, full anæsthesia, and, to some extent, for prolonged administration.

Eunarcon is little used here; it resembles evipan in effects, but is sold in ampoules ready for use.

Pentothal is said to be replacing *Evipan*. It is probably slightly quicker and more powerful, and is said to give smoother induction with less tendency to spasm of muscles. Both are exceedingly powerful agents, whose safety—for they do appear to be safe if used with reasonable skill and care—depends on the rapidity with which they are broken down and eliminated. Disease of liver or kidneys therefore is a definite contra-indication to their use. Another one is the presence of acute inflammation about the mouth or upper air-passages. Great caution must be taken in old age, and where there is sepsis (acute or chronic) or cachexia. Young children react well, but the injection is likely to be difficult and unpopular. Preliminary morphia must be used with caution, though sometimes advised as a routine.

The technique for these anæsthetics has been fully described so often that it must be familiar. The solution is made in the ampoules before use, and should not be kept more than half an hour. That of evipan is usually colourless, but may be pinkish, and that of pentothal should be greenish yellow, with a sulphurous smell. I prefer the finest needles, for their prick is scarcely felt and they discourage rapid injection. The pressure device for the arm must be capable of being released without disturbing the limb. The veins in front of the elbow are usually chosen, but any healthy one will do. If they cannot be seen they can often be felt. Pressure should not be kept up too long, as the whole arm may swell, and the veins become less distinct.

Care must be taken not to inject into the tissues; here pentothal is more damaging than evipan.

I inject slowly, not less than 10 seconds for each c.cm., and make a little conversation with the patient, who is usually asleep after 3 or 4 c.cm. Subsequent proceedings depend on the nature of the intervention. If this is trivial, no more anæsthetic will be required; if prolongation is necessary, further small doses are injected from time to time as required. For many of the minor operations—e.g., of gynæcology—it is often convenient to induce in bed with 4 or 5 c.cm., and to use the remainder of the syringeful in prolonging anæsthesia when on the table by small instalments.

These anæsthetics are also used, with special syringes and other devices, to maintain anæsthesia for long major operations, but in view of the alternatives available this does not seem necessary or desirable. Evipan in 10 per cent. solution is also recommended for rectal use. The dosage is 0·2 c.cm. for each pound of body-weight, but should be reduced for heavier persons.

RESPIRATORY DEPRESSION

Trouble may arise in basal anæsthesia from overdose, from deficient elimination in poor subjects, or from the effects of other drugs, or of inhalation anæsthetics that have been given. It is shown in the first place by depression of the respiratory, later of other, systems.

Care must be taken to ensure adequate oxygenation and a clear airway before, during, and after operation. An artificial airway, or tracheal tube if this has been used, should be left in place until the reflexes have sufficiently returned. Failure of breathing is treated by artificial respiration with 5 to 10 per cent. carbon dioxide in oxygen if necessary. Coramine has been claimed to exercise a definite waking-up effect, and is certainly useful as a central respiratory stimulant. It should be given in large doses—e.g., 3 to 5 c.cm. intravenously—accompanied by the same amount intramuscularly, repeated later when necessary. Icoral is also useful, and ephedrine and strychnine have been recommended. Later, intravenous saline, glucose, or blood transfusion may be needed.

Although I have appeared to condemn basal anæsthesia on theoretical grounds, I often use it. Most private patients, and many in hospital, expect and demand it. It is sometimes indispensable and often useful, but could be omitted now and then without loss.

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month; his name can be seen later in the half-yearly index.

FROM A GENITO-URINARY SURGEON

III

"Science, which has transformed the material world, gives man the power of transforming himself. It has unveiled some of the secret mechanisms of his life. It has shown him how to alter their motion, how to mould his body and his soul on patterns born of his own wishes. For the first time in history humanity, helped by science, has become master of his destiny."

So writes Alexis Carrel in his fascinating book, "Man the Unknown," and I am lying back in my arm-chair with my feet propped against the fender, thinking of all that this statement implies.

"For the first time in history humanity, helped by science, has become master of his destiny." So that is the explanation of all this mess; the wreckage of the League of Nations, the noise in Spain, the slaughter in China, the fear in Europe, the rush to rearm. Humanity, helped by science, has become master of his destiny. What a destiny! Aren't you being a little hard on humanity, Dr. Carrel? And on science? But I must read ahead and perhaps the author will explain more fully what he means. He cannot mean what I mean. Ah! I see that doubts are beginning to disturb Dr. Carrel's serene confidence, for listen to what he says: "But will we be capable of using this knowledge of ourselves to our real advantage?" Certainly it does not look like it, Dr. Carrel, for this destiny-making of humanity

is costing me four and ninepence in the pound. Surely that isn't necessary, is it?

But I must not keep on interrupting or I'll never get to the end. What does he go on to say over the page? "To progress again, man must remake himself." Splendid, Dr. Carrel! I never thought you would come to that after your grand beginning about mankind controlling its destiny.

* * *

In order to progress, man must remake himself. But "progress" is something of a test word, and no two people would seem to agree precisely as to what it means. I have been thinking about progress a great deal lately and only a few weeks ago decided to consult an acknowledged authority on the subject. I was fortunate enough to receive an invitation to lunch with him at the Garrick Club. There, over an excellent lobster, I confided to Mr. H. G. Wells my doubts about progress in general, and his special brand of it in particular. Eugenised mankind, underground cities, visits to neighbouring planets, enlightened governments, freedom from war, elastic marriage laws, and immunity from disease, these were all very well in their way, but did they necessarily imply progress? I pointed out that if this were so, then Europe at the present moment appeared to be walking backwards. Mr. Wells smiled indulgently. He began by reminding me of the insignificance of the events of a decade when viewed from the perspective of a thousand years, and ended by thrusting much of the blame for the present unsatisfactory state of affairs on the shoulders of the Creator. Man was not so much a sinner as sinned against. The whole business had been badly botched for him. It wasn't his fault. After finishing his speech Mr. Wells filled up my glass with the excellent white wine that he had selected, looked at my serious expression, and gave vent to one of his inimitable chuckles. It was impossible to be serious any longer, and our conversation took another direction.

* * *

Half an hour later I left him in order to attend a meeting of the British Social Hygiene Council, to which I happen to be attached. The food at the Garrick had been excellent, and H. G., as always, a perfect host, but I had learnt very little about progress. At the meeting of the council I gathered that progress meant more hygiene. If I had happened to have been attached to the Society for the Study of Sobriety it would have meant more temperance. Really, it was all very difficult. Would it not be better for me to avoid these somewhat biased reformers and seek the opinion of someone who had no axe to grind? I believed that I knew such a man, and when an opportunity presented itself, made my way out to Hampstead.

* * *

"What," I asked, as soon as I was seated in a comfortable room lined with books, "What is progress?" My authority with no axe of his own to grind looked at me with twinkling eyes.

"I don't see why I should tell you that gratuitously," he answered, "when I happen to be delivering a series of lectures on this very subject at twenty-five guineas a time. But all the same I'll do it. Most people define progress," he began, stopping for a moment to inhale and then to blow out a cloud of smoke, "as—'Everybody becoming more and more like themselves.'" Then he lay back in his chair and continued smoking. After all, everything really pertinent to the subject had been said.

* * *

If this definition be true it is not surprising that Dr. Carrel's view of progress will differ as widely from yours or mine, as the means he will employ in order to achieve it will differ from our means. And in these differences lie the explanation of half our troubles, past and present. It is your reformer who has caused all the uproar—or rather your reformers, for the only way of avoiding twenty conflicting lines of advance is to live under a single dictator and subscribe heart and soul to his particular brand of progress. That is what sensible people are doing in Italy, Germany, and Russia. I call them sensible because they have the sense to realise that wholesale acceptance of the dictator's views on progress is the only method of keeping away from concentration camps, lumber works, salt mines, and firing squads. But let us return to Dr. Carrel. If he becomes a dictator, I gather that he will found a vast institute of the Rockefeller type for the study of mankind. Within its walls, experts in physiology, chemistry, medicine, and psychology will conduct researches, reach certain conclusions, and on the basis of these conclusions proceed to reorganise the world. Speaking personally, I shall probably have to emigrate from Dr. Carrel's world for having a different view of progress. I shall like it as little as I like Aldous Huxley's "Brave New World" or Wells's "Underground Utopia."

* * *

But this is the Great Scientific Age, and it is only natural that men should turn for guidance in the direction of the prevailing influence of their day. The Superman of the twentieth century is a Super-scientist. In other ages he was something else: at the time of the Renaissance an artist, during the preceding Dark Ages a warrior, in Greece a philosopher, in ancient India a sage. He thus varies not only in different centuries but in different countries. Speaking generally, it may be said that the Superman of the Western Hemisphere is the man of action and the Superman of the Eastern Hemisphere the man of inaction.

"As the kindled fire consumes the fuel, so Arjuna! in the flame of wisdom the embers of action are burnt to ashes.

"There is nothing in the world so purifying as wisdom; and he who is a perfect saint finds that at last in his own Self.

"He who is full of faith attains wisdom, and he too who can control his senses. Having attained that wisdom he shall ere long attain the Supreme Peace."

What a different being is this unruffled sage from the superman of Wells, Alexis Carrel, the British Social Hygiene Council, and the Society for the Study of Sobriety, with his worship of efficiency and his frenzy for organising. Yet, when one comes to think of it, why should one assume that the efficient and well-organised office or factory is the best model for humanity? And why should we believe that the highest wisdom is to be found in the Western Hemisphere rather than in the Eastern—in the future rather than in the past? According to Dr. Carrel the key that will eventually unlock the door to progress has yet to be forged in some vast Rockefeller laboratory for the study of mankind. May it not perhaps have already been forged and be lying somewhere lost, neglected, and covered with dust?

I think that I will close this book and go to my bookshelf for the "Bhagavad-Geeta."

SPECIAL ARTICLES

THE REFUGEES IN CATALONIA*

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HAVING settled the early influx of refugees from the south (Andalusia and Murcia), and those subsequently evacuated from Madrid, Catalonia is now giving shelter to an overwhelming number arriving from Asturias and is threatened with further evacuations both from France and from Madrid. It is impossible to give accurate figures owing to the rapidity with which refugees are still arriving, but Senor Casademunt, the commissario for refugees, gave as a conservative minimum 37,000 in Barcelona alone and 500,000 in Catalonia, who are directly "controlled"—i.e., entirely supported—by Assistencia Social.

Many others are living independently, either able to support themselves or supported privately. The response of the Catalans has been magnificent; in many of the 17 colonies which we saw the bedding and equipment had been entirely provided by the local population, whilst in some cases the refugees actually had preferential treatment in the distribution of the very meagre supplies of food. With the new influx from the north, however, which has been in progress since the end of August, the problem has far passed the reach of private effort, and the public services are showing desperate deficiencies.

Unfortunately the numbers of refugees arriving from the north—principally from Gijon, whence they have reached Bordeaux by boat, and been sent through France by train to Puigcerda—have been so enormous during the last two months that it has been only possible to lodge them anyhow and anywhere. As many as 11,000 have arrived at a few hours' notice, or without notice, in six days. Consequently they have had to be drafted to the same villages and often to the same houses as those already occupied by refugees from the south.

The dangers and hardships of this wholesale mixing of populations are impossible to over-estimate. The refugees from Murcia and Andalusia are for the most part used to a very low standard of living, many of them never having slept in a bed and some having lived in caves. The majority are verminous, and their ideas of sanitation utterly primitive. There is a relatively high incidence amongst them of tuberculosis and trachoma. Those from the north, who include many Basques, are for the most part clean and healthy in spite of the privations they have already been through. There is normally a very low incidence of trachoma both in the northern provinces and in Catalonia. Typhoid fever, however, is endemic in both localities.

The medical emergencies which have arisen and are immediately in prospect may be defined as follows:

1. The introduction and spread of new diseases amongst previously healthy northern refugees and Catalans.
2. Epidemics due to defective sanitation, lack of soap, and to overcrowding.
3. Malnutrition affecting particularly infants, young children, and pregnant and lactating women.

With the onset of the winter, when housing and bedding must necessarily be found increasingly inadequate, there is every prospect of all these dangers being alarmingly increased.

AT THE FRENCH FRONTIER

Until recently the refugees entered Catalonia through Puigcerda and Port Bou, but the Port Bou station has suffered heavy bombing during the past few weeks and the whole flow now passes through Puigcerda. At least 45,000 have arrived from the north since August 24th, 11,000 passed through Puigcerda during the six days preceding our visit, and the delegate on the local Assistencia Social had been advised to expect at least 10,000 in the next few days. These figures were given us before the question of the return of 80,000 refugees in France had been raised.

This huge influx of people to a small frontier town has led to great congestion and difficulty in handling. One day's contingent often cannot be cleared before the next arrives. On arrival the refugees are registered and given meal-tickets. For these they wait in queues for anything up to eight hours in the open air. There is nothing to sit on except the dusty ground and there is no shelter apart from the station offices and the dining-room of a small hotel. The wind is already cold in the Pyrenees and the children are clad mostly in summer garments. Conditions are just tolerable now while the weather is good, but there will be extreme hardship and misery when the weather breaks as it is already threatening to do.

Food is scarce, and the cooking facilities of the hotel are inadequate to feed 2000–5000 people. The refugees are given one meal of rice or potatoes in the afternoon, and for those who stay overnight a meal is given in the morning of bread and milk if any is available. A variable amount of fresh milk is obtained locally, but the delegate of the Assistencia Social told us that it is usually sour by midday. He has no reserves of food, except potatoes, and is urgently in need of tinned milk. About 40 per cent. of the refugees are children under seven years who have been seasick and short of food for many days, and for these a supply of milk is essential.

The refugees spend the night in halls and sitting up in cinema seats. A few fortunates are housed in commandeered hotels. The sanitary arrangements consist of six lavatories and four hand-basins in the hotel and station. These are quite inadequate for the number of people; the station yard and platforms are very foul.

The general condition of the refugees on arrival seemed to be good, although there was evidence of under-nourishment in a number of families and many of the children and aged people were very exhausted on arrival. The women showed admirable courage and spirit and a scene of intense activity centred round a running brook in the station yard, where children were being vigorously scrubbed, brushed, and combed, and in a few hours the whole yard was gay with newly washed garments drying in the sun.

There is no medical examination at the frontier. The obviously sick are seen by the doctor attached to the Assistencia Social, and sent to the local hospital if necessary.

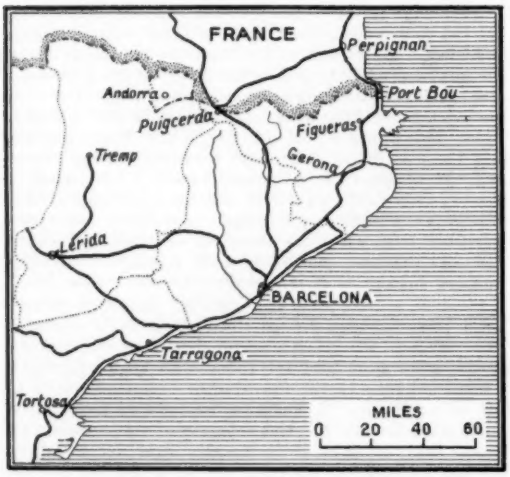
From Puigcerda the refugees are dispatched in trainloads of about 500 towards Barcelona. Some are dropped off at intermediate stations to be distributed locally, but increasing numbers reach

* Part of a report to the National Joint Committee for Spanish Relief, 53, Marsham-street, London, S.W.1.

Barcelona as the villages in the northern region can take no more. In Barcelona they pass through one of the several large clearing stations (of which we visited two, the Kropotkin and Luis Companys refugios), and after two or three days are sent on to provincial towns to be redistributed to smaller towns and villages in each district. Most of these towns are already supporting a number of refugees from Madrid and the south who have been established there for some months.

MEDICAL SERVICE FOR REFUGEES

The number of refugees has been so great, and the immediate problems of feeding and housing them so urgent, that it has been impossible to provide for any form of routine medical examination. An effort was made to carry out some such scheme for the refugees coming from the south, but this broke



down under the pressure of circumstances. Similarly, vaccination for small-pox and typhoid, though carried out on a large scale in some of the Barcelona receiving stations and in certain localities, has been only sporadically applicable.

Although all the colonies are at least theoretically under the care of a local medical officer (who in the larger centres visits once a day), it is only possible for those who "report sick" to be seen. The medical service and medicines are provided free, there normally being a doctor paid by Assistencia Social resident in each municipality. As in most cases, however, the care of the refugee population has been added to his ordinary work, it is obvious that only urgent cases can be dealt with at all adequately. In the case of small colonies and outlying villages, the extreme shortage of petrol has made regular visiting impossible; in one instance (a hamlet of 29 containing 18 refugees, one of them with active tuberculosis) the doctor had been unable to visit for nearly two months. It follows that only the fringe of the tuberculosis and trachoma problems are at present being touched. In both diseases, early cases are only likely to be diagnosed by expert examination under favourable circumstances, whilst many patients with advanced disease are unlikely to report sick until they have been a source of infection for a considerable time.

As far as we were able to judge, hospital accommodation in the larger centres appeared adequate except for dealing with trachoma or large epidemics, but all clinics were greatly handicapped by the difficulty in obtaining drugs, anæsthetics, and instruments. In Barcelona the great Stadium (previously used as a clearing-house) has been converted into a refugee hospital, with a resident and visiting medical staff, sterilising plant, accommodation for infectious cases, and an empty wing available for epidemics. Major surgical conditions are sent to the civil hospital. In Gerona, an old convent has been converted into a hospital of 120 beds, serving a refugee population of 35,000. Here only typhoid fever (of which there were 16 cases) can be treated on isolation precautions, and active tuberculosis has to be mixed in the general wards. A further 60 beds are being made available for tuberculosis. In Figueras sick refugees are admitted to the general hospital which deals with both civil and military cases.

All recognised cases of trachoma are at present being sent to Barcelona, where there is a trachoma institute for 180 patients. As the treatment is necessarily prolonged (several months even in favourable cases) there is no doubt that this accommodation is hopelessly inadequate. It is also clear from the most cursory examination that only a small proportion of cases in the Gerona and Figueras districts have been recognised and isolated. It is proposed to open trachoma homes in each district, but at present there is no immediate prospect of this being done.

As all nursing was previously carried out by nuns, there is a great shortage of nurses with any training whatever, both in hospitals and elsewhere.

FOOD AND CLOTHING

The government department responsible for housing and maintaining refugees is the Assistencia Social, whilst children's colonies, by whatever organisation established, have a different system of control. Without detailing the organisation of the Assistencia Social, it may be said that the general principle adopted is for payment to be made direct to the local municipalities, which through the local representative of Assistencia Social are responsible for feeding and housing the refugees drafted to the district. Two systems have been adopted in housing refugees: (1) billeting individual refugees or families in the houses of the local inhabitants; and (2) establishing large refugee houses or colonies. Owing to the very different standard of living of the Catalans and the southern refugees, the former system has been largely abandoned in favour of the latter, though many of the local Catalans said they would gladly accept twice the number of Basques or Asturians on this basis if only the southerners could be removed.†

† The number of Basques already in Catalonia was estimated by the director of the Sanidad Civil as not less than 33,000. The number increases daily and will be more than doubled when the Basque refugees at present in France are repatriated. The Basque Delegation in Barcelona advocates the segregation of Basque refugees in a special territorial zone, with their own administration and a sorting station in Barcelona. This scheme aims at avoiding a wholesale mixing with different populations with other standards of living and hygiene; but it is at present impracticable as refugees from the south and Madrid are distributed widely throughout all provinces of Catalonia. The Basque Assistencia Social supplements by 50 centimos the government allowance of 2 pesetas a day to each refugee.

In each colony of Bilbainos we visited in Catalonia we met women who have children in the English contingent; and they were all most grateful that their children could remain in England away from war conditions. We met these women by chance among the small number of refugees we were able to converse with in the few colonies we visited; but it gives an indication that a number of the children's parents are no longer in Bilbao.

Food.—Two different systems of providing food have also been tried. The amount allowed for this purpose is 2 pesetas a day per head (which, considering that a sandwich may cost 1 peseta 10 c., is only the barest minimum even if food is purchased in bulk). In some localities refugees have been given the money, paid weekly, and allowed to fend for themselves, though usually being given the opportunity of buying food centrally at the lowest rates. This has generally been found unsatisfactory, since even with the money available, food is frequently unobtainable. Thus in one large colony no one had been able to get anything whatever to eat the previous day until 11 o'clock at night. The more generally adopted system is for Assistencia Social to provide the food, and, if possible, for cooking to be done centrally. In many cases the rations are hardly more than enough to maintain life. The shortage of milk is universal. One colony of 225 refugees, in which there were 135 children under fourteen, had only four tins of condensed milk a day, the four cows allotted to the colony having had to be killed on account of tuberculosis. In another colony there had only been two litres of fresh milk the previous day to provide for 147 refugees, of whom 22 were infants under four years and 74 were children under fourteen.

Whilst milk remains the most crying need, there is also the greatest shortage of bread. Meat is rarely obtainable at all by the majority of refugees. In one colony we found that the children under thirteen received one slice of bread a day, whilst the remainder had one slice on four days a week if it could be bought. It is a common sight in Barcelona to see bread queues of two or three hundred people, half of whom may stand four or five hours only to find that the supply is exhausted. Nutritional anæmia, particularly amongst the younger children, is already becoming apparent.

Clothing and blankets.—The great majority of refugees have been able to bring no clothes or blankets with them. Many of these from the south were eight days or more on the road, those from Malaga having gone on foot to Almeria. Nearly all those from Bilbao and Santander have had to leave their baggage in France, but a number of the Asturians now arriving have come provided with blankets. The greatest hardship is being experienced by those who have no change of clothes or possibility of replacing those worn out. In one house of Bilbao refugees all were having to sleep fully clothed on palliasses as there were no beds or blankets available. They said that they minded the lack of soap and cleanliness more than the lack of food. They had been without soap for two months. There is no doubt that with the onset of the winter, the greatest suffering will be entailed, particularly in the north of Catalonia, from the lack of winter clothing, blankets, and shoes.

SUMMARY

1. There are conditions approaching famine amongst refugees in the north of Catalonia and in remote villages in the south. This is principally due to lack of food throughout the whole province, but also partly due to breakdown in transport owing to the extreme shortage of petrol.

2. The most urgent necessity at the moment is for milk. Although it has been possible to maintain the production of crops, the extensive slaughter of cattle for food will prevent an adequate home production of milk for a long period.

3 There is a universal shortage of winter clothes, blankets, and shoes, which is becoming increasingly severe with the onset of winter and the continued influx of refugees.

4. In view of the verminous condition of many of the refugees, the lack of soap is a serious danger; although no cases of typhus have as yet been recognised, conditions are such as to favour its epidemic spread if the disease should once occur.

5. The principal medical dangers are at present those arising from the spread of trachoma, tuberculosis, and typhoid fever.

6. Medical supplies of all kinds—including particularly anæsthetics, sedatives, rubber gloves, dressings, and antidiphtheritic sera—are urgently needed in Figueras and Gerona.

SECOND CONGRESS OF STRUCTIVE (PLASTIC) SURGERY

THE meetings of this congress were held under the presidency of Mr. T. POMFRET KILNER (London) at the Royal Society of Medicine on Oct. 6th and 7th. Sir HAROLD GILLIES, President of Honour, in welcoming the visitors said their presence in London was taken not only as a compliment to this special branch, but to the whole of British surgery. It was a concrete example of the value of the interchange of experience. He hoped they would continue to attract the many real workers and investigators in this field, and at the same time repel the superficial and the unscrupulous, who, owing to their numerical strength and advertising methods, had caused the specialty to suffer much in reputation. It was one of the duties of this congress to help it to fight its way back to an honoured place and, while encouraging all forms of structive and plastic surgery, to resist the flattery of the Press, excluding from its ranks any who were guilty of intentional advertisement.

Free Skin-grafts

The first day's contributions consisted largely of demonstrations of slides and cinematographs of operations treating all kinds of facial, especially nasal, deformities and thus they were mainly to do with skin grafting. The use of cartilage, bone, and ivory for the building up of a lost or deformed bridge of the nose was discussed, and the majority tended to prefer bone to cartilage on account of the latter's liability to cause distortion after operation.

The first paper in this discussion was by Dr. M. COELST (Brussels), who described a method of fixing free whole-thickness skin grafts, the results of which had confirmed its excellence since it was first used in 1935. For local anæsthesia he used 1 per cent. Novocain with ephedrine and adrenaline. After scars were excised a pattern was cut outlining precisely the defect to be covered. A graft was then cut out from some remote part of the body following exactly these dimensions. Small flaps were taken from behind the ear, and large ones from over the clavicle. Next the graft was united by means of a fine suture to the edge of the defect. A celluloid frame 5–6 mm. wide and 1 or 2 mm. thick was sutured by means of horse-hair sutures to the neighbouring skin, its inner edge remaining at least 3 mm. away from the suture line. Finally, a stent block softened in hot water was applied, and threads were placed under the frame between two stitches and knotted over the block. When all the precautions were observed the whole thickness of the skin graft would take successfully.

Dr. L. DUFOURMENTEL (Paris) set out the operative conditions peculiar to free grafts applied in different

parts of the body. He had first studied the reconstruction of the eyelids by means of skin taken either from healthy eyelids, or from behind the ear, and then he reconstructed other parts of the face, including eyebrows and other hairy surfaces.

Dr. F. BURIAN (Prague) detailed the experiences of the Prague Institute for Plastic Surgery in applying free whole-thickness skin grafts, a procedure to which he was very favourably inclined. It gave a better cover by transplanting all skin elements, and the skin did not become shrivelled to the same extent as after merely epidermal transplantation, in Thiersch grafts. Its success depended on a right choice of the ground on which the graft was planted, and on observing all the precautions for asepsis, careful manipulation, hæmostasis, correct graft fixation, immobilisation, and after-treatment. For fixation he used in cavities Esser's original method with a stent mould or an iodoform tampon, but for surface work he preferred a prosthesis cut from rubber sponge and fixed by sutures knotted under mild tension. The most suitable ground for these transplantations was adipose tissue, such as that found in the face, having a fine grain, rich connective tissue reticulum, and a good blood-supply. Tendons were not suitable, and sclerotic scar tissue was the least suitable of all. If the epidermis separated at some spot, resulting in bared corium, the operation could not be regarded as completely successful, as at such spots healing took place by scar, with impaired function and bad cosmetic effect.

Rhinoplasty

On the second day the morning session was devoted to rhinoplasty. Dr. J. SAFIAN (New York) in assessing the value of the operation said the human nose had a dual rôle—its function as a part of the respiratory system, and its effect upon the physiognomy. It was the one feature of the face that was subject to great variation in size and form. Normally, it bore a definite proportion to the other parts and any decided deviation was disfiguring and likely to have an adverse psychological effect. The deformity might be either congenital or acquired. Owing to the multiplicity of elements that entered into its construction, the nasal disfigurements might be almost endless in their variety. The nose was divided into upper, middle, and lower third, and each of these should be regarded as a separate unit, yet always with the view of coördinating those elements into a harmonious whole. In correction procedures the greatest difficulties were met with in the lower third, since this contained the alar cartilages, the septum, the columella, and the anterior nasal spine. In 1935 he had published a new technique aimed at correcting the nasal tip. Very little had been added in recent years to the method devised by Joseph. But Dr. Safian considered that the tip correction had the drawback that it often produced a pinched appearance that was sure evidence that it had been operated upon. The basal principle of his operation was that the normal anatomical relationships were preserved, quite irrespective of the amount of change in either size or form of the alar cartilages. A feature of his operation was its flexibility, by which it permitted the surgeon to vary his incisions to meet the individual requirements, and to avoid the stereotyped result.

Mammaplasty

An important contribution on the principles of mammaplasty by Dr. FRANCIS BURIAN was read in the afternoon's session by Dr. EVA KUBERTOVÁ. It was based on 161 operations undertaken for various degrees of hypertrophy of the mamma, using technique that was arrived at after he had tried all the different methods that had been responsibly advocated, including the transplantation of the areola and the sickle-shaped resection of the lower segment, a procedure originally carried out by Morestin. A definite disadvantage, however, was that this endangered the vitality of the areola, making the breast too flat, the resulting scars often being much too large. The most certain way of conserving the areola was to take care of the blood-vessels around it, especially the circulus venosus; this was secured by cutting away the epidermis only for a short distance around the areola. In that way a protective zone of 2 or 3 cm. in extent was secured protecting the veins of the areola. A large scar was a serious drawback. When decreasing the size of the gland it must be remembered that the part left had to suffice for function; the division ought to be along the connective tissue septa, for the residual part of the gland must connect with the excretory ducts, the blood-vessels, and the nerves. With only slight ptosis, resection was not necessary; all that was needed here was a modelling with a series of radial stitches. In mild hypertrophy a wedge-shaped resection must be carried out, downwards and slightly inwards. When there was gross hypertrophy the upper and outer as well as part of the lower segment must be resected. The remodelled remainder of the gland was fixed to the muscle by unabsorbable sutures. He used Claoué's technique only in cases of very slight ptosis and hypertrophy. No method was entirely free from some disadvantage.

Mr. A. H. MCINDOE (London) reviewed 80 cases of mammaplasty by Sir Harold Gillies and himself and other colleagues for mammary hypertrophy. There was no need to-day to justify this type of plastic surgery; it was as genuine as any other type, and its justification was seen in the results. There was, however, need for a very careful selection of cases, and the operation should be done only by capable surgeons. The ætiology of mammary hypertrophy was very complex, being concerned with glandular excesses and deficiencies, repeated pregnancies, and physiological changes, all acting on a structure whose fixation was poor. Often the organ was of considerable weight, and the skin could ill support it. There were five types of mammary hypertrophy: (1) the long, flabby breast of an otherwise well-formed girl, with much glandular hypertrophy; (2) the broad, heavy type associated with obesity, and presumably also with endocrine deficiency; (3) the sac-like breast that followed considerable increase in weight, and that seen after multiple pregnancies. This was the involutional type, and in gross forms was a deformity. (4) Asymmetries great enough to call for correction. (5) Gynæcomasty, a true hypertrophy that might result in a breast weighing 60 lb. Indications for operation were a feeling of great weight, backache, a tugging on the shoulder-straps, and intertrigo. Sometimes patients when waiting to be seen supported their breasts with their hands. Contra-indications, however, must also be fully recognised. It was highly undesirable to operate on those in poor general health, especially if they had poor skin, for they were generally unable to combat small infections. The operation should be regarded as a major one; it was necessary to be cautious in operating on patients of only moderate intelligence. The best procedure had been evolved as a result of trial and error. The surgeon must make an anatomically correct pedicle, carrying a blood-supply that would support the nipple, and allow it to be transported to its normal

position on the chest without suffering necrosis. Secondly, he must reduce the covering skin with as few and as inconspicuous scars as possible. A contribution by Sir Harold Gillies was the use of a double pedicle, which was made by an external and an internal tube pedicle carrying the nipple on the apex of the V, the central portion being excised. That gave a sound blood-supply and was an excellent method of shifting the nipple to its normal position; it enabled a very even breast to be made—a disadvantage sometimes was that too much was left in the axilla. The double pedicle was still being used. The next phase was Wiesenberger's introduction of the internal pedicle. If this was made correctly, the blood-supply to the nipple was never in danger; it must not be tied tightly to the chest wall. A single upper flap obviated a scar from the nipple to the submammary incision. Mr. McIndoe favoured operating in two stages, as he did not think one stage safe enough in a large series of cases of gross hypertrophy. After many single operations the surgeon had the feeling that if a little had been left for a second attempt a more satisfactory result could have been achieved. For moderate ptosis where a single upper flap was impossible, the internal pedicle was used, or possibly a double pedicle together with the typical Weisenberger operation. When the single upper flap was used there were 7 cases of mild necrosis of the skin edge. Partial necrosis of the pedicles resulted from maladjustment of the upper pedicle. One of the curses of these operations was hæmatoma formation; there were 15 cases in the series, 5 of which became infected, resulting in a delayed convalescence; 6 of the patients had stitch abscesses, and in all of these chromic catgut had been used, the complication disappearing when the material was given up. There were 4 cases of deep-seated abscess. All these operations should be done with every care, and under the most stringent aseptic precautions.

Dr. M. PRÉVOT (Marseilles) described a method of rapid dilatation for *cicatricial stenosis after laryngotracheostomy*. Usually, he said, this was a slow and thankless task, and he demonstrated a tube designed to shorten the procedure; it consisted of two hinged half-tubes, furnished with a double spring to keep it open. The degree of elasticity of the spring could be altered to regulate the dilating force. It caused a rapid destruction of the scar tissue, hence its action must be closely watched. It must be removed after being in position a few days, and could later be replaced if necessary. It must not be retained in the presence of pain or a rise of temperature.

Dr. A. GALLASSI (Bologna) with the aid of drawings and radiograms described an operation for *congenital anorectal atresia*. The case on which the contribution was based was that of a child aged 6 years. Besides the congenital atresia she had a double vagina. The intestines emptied by an abnormal opening in the vestibule between urethra and vagina. At the operation it was found that the intestine was too high and too far forward to allow it to be brought directly to the surface near the anus. A new rectum was made from the right vagina, which thus conducted fæces from the intestine to the anal region. He demonstrated the passage of barium from the intestine to the vestibule before the operation, and to the anal region after the reconstruction.

Dr. JACK THEVENIN (Paris), discussing the *causes of intolerance to cartilage grafts*, said that notwithstanding the careful precautions taken when these had been used, especially in their after-care, there would always remain some risk that the grafts would not take and would be expelled. Failures he classified into three groups: those due to the general condition of the patient, those due to a poor condition of the tissue in the locality, and those attributable to extrinsic factors. He reviewed the accidents that might happen after or during the use of grafts taken from another person; blood-groups were important in this.

Sir HAROLD GILLIES exhibited a film of a case with extensive *destruction of the nasal contour* due to syphilitic erosion. The film showed his method and the good results he had obtained from intranasal skin-grafting.

THE FRAMEWORK OF MEDICINE IN INDIA

THE members of the British Medical Association who visited Bombay on their way to the Melbourne meeting in 1935 were impressed by the need for reorganisation of the profession in India, and the council decided to send the secretary of the association, Dr. G. C. Anderson, to investigate conditions there on its behalf. The secretary therefore spent three months of the winter 1936–37 in an extensive tour of the country, visiting the principal medical colleges and schools, civil and medical hospitals, maternity and child welfare centres and so on, and interviewing and collecting the opinions of representative medical men and others. The council have now published his report,[1] summarised below, with a view to obtaining the comments and suggestions of the Indian branches of the association and of others interested before deciding upon action.

EXISTING SERVICES

Medical care in India is provided by the Indian Medical Service, the Royal Army Medical Corps, the Indian Medical Department, the provincial medical service, the civil surgeons, the independent medical profession, the public health services, the medical missionary and railway services, and a voluntary women's medical service. The I.M.S. is primarily military but has a civil branch of 220 officers, of whom 166 are British, which comprises civil surgeons, specialists at teaching hospitals, and research workers, appointed from those who have completed 2–5 years' service on the military side. The R.A.M.C is concerned solely with the care of the British troops stationed in India. The I.M.D. supplies the subordinate personnel for the army and consists of military assistant surgeons and sub-assistant surgeons who have mostly been trained at government expense and act as house surgeons, clerks, storekeepers, &c., and are responsible for hospital discipline. The assistant surgeons are usually Anglo-Indians and serve with the British troops under the R.A.M.C., whereas the sub-assistant surgeons are Indians working with the Indian troops under I.M.S. officers, and both may be selected for civil employment. Each province has a civil medical department under a surgeon-general, who is responsible for the superintendence of hospitals, asylums, and other institutions, for public health administration, and for medical education and the regulation of medical qualifications in the province. His staff, the provincial medical service, is recruited from the I.M.S. or the I.M.D. or appointed directly from among candidates holding Indian qualifications. The civil surgeons are

[1] *Brit. med. J.* Suppl. Oct. 9th, 1937, p. 221.

appointed from the provincial medical service in a proportion of about 4 to 1, and are generally responsible for medical administration and for all government hospitals in their districts, in addition to which they act as medico-legal advisers to the government and as superintendents of the district jails, attend the local government servants, examine recruits, and engage in private practice. They have a suitable number of assistant and sub-assistant surgeons under them.

The independent medical profession, which has greatly increased in recent years, includes a number of men who have received post-graduate instruction in England. The conditions in rural areas are so poor that private practice is practically confined to the towns, and the market has now been so flooded by licentiates of inferior training that there is difficulty in making a livelihood even in the more populous areas. Fees everywhere are necessarily very low and the standard of medical ethics is even lower. No legal restrictions are placed upon unqualified practice, and the population shows a preference for the indigenous systems of medicine as practised by the Hakims and the Vaids, and also supports so-called homœopaths and quacks of all kinds.

The public health service is administered both by the central federal government, which deals with questions affecting India as a whole, such as emigration and the census, and the provincial governments, which are responsible for local matters, hospitals, registration of births and deaths, water-supplies, and the like. The work of the federal government is superintended by the public health commissioner, a member of the I.M.S., and that of the provincial governments by their directors of public health, each with from 2 to 4 assistant directors. The municipal authorities deal with administration in the towns and the district boards in the rural areas. Their staffs are similar, comprising whole- or part-time medical officers of health, vaccination officers, school medical officers, sanitary officers, and so on. In spite of this imposing organisation Dr. Anderson formed the opinion that even elementary sanitation is largely deficient, and that there is a considerable need for general coördination.

SOME GRIEVANCES

In considering complaints against existing conditions, Dr. Anderson concentrated upon those common to most provinces. In the I.M.S. itself the Indian officers hold that they are unfairly treated as compared with Europeans. For example the gratuity payable to those of them who are retired after five years' service is Rs.4500 (£337 10*s*.), compared with £1000 allowed to Europeans after six years, and although the basic rates of pay are the same in both categories, the Europeans receive a substantial addition of overseas pay. Further, they complain that the civil posts reserved for Indian I.M.S. officers are markedly less than those for Europeans, and that no specialist posts in the teaching centres are reserved for them. The purpose of the civil branch of the I.M.S. is to ensure a reserve of trained men for emergencies and adequate medical attention for European government servants by those of their own race. Indians hold that such a reserve could easily be built up in India and that greater opportunities for Indians would produce men of sufficient standing and education to satisfy the needs of the community. As regards the teaching posts, some hold that these should be filled by the best men obtainable regardless of race, while others consider that the presence of at least a few European officers is essential if the latest English teaching is to reach the Indian colleges.

The competition of the members of the I.M.S. and the provincial medical service is a perpetual source of grievance to private practitioners, in whose view government subsidised surgeons and specialists should be limited to attending government servants and their families and to strictly consulting practice, except where this would cause hardship to the community, and an honorary or part-time paid staff should replace the members of the I.M.S. at hospitals. It seems, however, that frequent transfers prevent I.M.S. officers from acquiring extensive private practices, and that these proposals would admit the less well qualified to important institutional posts. At present many of the appointments which offer the more attractive fields of work, for example in the district civil hospitals, and in public health and research work, are held by government medical officers, and this undoubtedly acts as an incentive for Indians to do post-graduate work and attain higher qualifications. The independent practitioners suggest that if these posts were open to competition this incentive would be at least as great, and they claim that the position in the large presidency towns and in certain provinces, where many posts are open to independents, should be extended to the whole of India.

HOSPITALS AND RURAL AREAS

The majority of the hospitals and dispensaries are maintained out of public funds and are free. There is no adequate almoner system so that the middle classes flock to these institutions, which thus deprive private practitioners of their livelihood and are unable to give sufficient attention to the legitimate poor. All hospitals are short of nursing staff as custom forbids Indian women generally from adopting nursing as their profession. While medical men swarm in the towns they are a rarity in the rural areas, where the pay offered is very small—Rs. 70–100 a month or less—and there is no opportunity for adding to it by private practice, and where there are no social amenities and sanitary and housing conditions are prohibitive. It has been suggested that a lower grade of "first-aid" men should be trained for these districts, but it is likely that they also would take the first opportunity of migrating to the towns.

MEDICAL EDUCATION

Medical men trained in India are divided into graduates and licentiates. The former attend one of the medical colleges such as Bombay, Calcutta, Madras, or Lahore, whose standard has been much improved in recent years, and whose degrees are now recognised by the General Medical Council. The licentiates are trained at one of the many medical schools, some of which maintain a deplorably low standard, particularly in the preliminary education demanded and in the class from which their students are drawn. The licentiates undoubtedly serve a useful purpose where they work under the supervision of more highly qualified men, as in the plantation hospitals in Assam, but they are not now contented with such subordinate posts and are engaging in general practice for which they are often unsuited. Post-graduate instruction may be said to be non-existent in India. There is no organised profession of pharmacy and in most provinces no restriction whatever upon the dispensing of medicines. The manufacture of drugs is also quite uncontrolled, and adulterated and inferior preparations are specially made for the Indian market.

PROFESSIONAL ORGANISATIONS

There are three main professional organisations, the Indian Medical Association, the All-India Licentiates' Medical Association, and the British Medical Association. The I.M.A., with a membership of 2000, mostly Indian graduates, is a medico-political body whose main aim is at limiting the competition of the government medical men. The A.-I.L.M.A. comprises 3000 of the 30,000 existing licentiates, and is working for an improved and uniform standard of medical education throughout India, and for the placing of their members upon an equal footing with the graduates. The B.M.A. has a membership of 1500, with a strong service element, but its branches, except in Assam, have been largely inactive and its subscription rates prohibitive for licentiates, even in those branches where they were eligible for admission. A representative meeting of the association, which Dr. Anderson attended at Bombay, proposed to admit Indian graduates and licentiates to all branches and to set up a central office with a part-time paid secretary to improve the association's organisation.

MEDICINE AND THE LAW

Precautions against Puerperal Infection

THE use of masks and gloves by nurses attending confinements in hospitals was a matter of discussion a few months ago [1] in the Ashby de la Zouch hospital case (Heafield *v.* Crane and Hart). It was again discussed at a recent inquest at Burton-on-Trent. The deceased woman, Mrs. Shepherd, had given birth to a child in the Burton Nursing Institution on May 11th. Four days later it was suspected that she had contracted scarlet fever; she and her child were therefore moved to the Isolation Hospital. Subsequently her husband was told by the medical officer of health that Mrs. Shepherd was suffering from puerperal septicæmia. On the 21st she died. The body was exhumed in July. Sir Bernard Spilsbury conducted a post-mortem examination and expressed to the coroner his opinion that the cause of death was acute blood poisoning consequent on puerperal fever following childbirth. Asked if, in his view, every precaution had been taken in the nursing-home to avoid infection, the witness replied that the fact of the infection was the answer. In other words he thought that there had been want of care. Though it was always difficult to find the source, he considered that the infection had been set up in the nursing-home. There had been evidence that Mrs. Shepherd was attended by a nurse who had previously been attending another woman who had a high temperature. The nurse had put on a clean apron before going to Mrs. Shepherd but did not wear gloves or a mask. Sir Bernard Spilsbury said he could not help feeling that it was a mistake that a nurse recently in attendance on a patient with a high temperature, which might have meant a septic condition, should have attended the labour of another woman. It was, he said, a wise precaution for nurses to wear gloves, especially at confinements, and also masks. Coughing or sneezing could spread infection; the mask would protect the patient; infection could also come from the nurse's hair; it was important to wear headgear fully covering the hair. Evidence was given on the other hand by the doctor who, on seeing the rash on Mrs. Shepherd, had originally diagnosed scarlet fever. He told the coroner that he was as confident now as he was then that the illness was scarlet fever. Asked by the coroner if he thought it would be wiser for the nurses in this institution to wear gloves, he replied, "I don't, frankly." The coroner, in his summing-up, said that he could not see any flagrant negligence. He told the jurors that, if they thought Mrs. Shepherd died from scarlet fever, the only possible verdict was death from natural causes; if they thought death was due to puerperal fever, the correct verdict would be death by misadventure. The jury's verdict was "Death by misadventure, no blame attaching to the nursing institution, the isolation hospital, or the medical profession." With this verdict the coroner expressed his own concurrence.

Without challenging the merits of this particular case, one may suggest to hospital committees that the views attributed to Sir Bernard Spilsbury represent an accepted standard of prudent practice.

[1] *Lancet*, August 14th, p. 398.

The Voluntary Mental Patient

An interesting paper, read at the quarterly meeting of the Royal Medico-Psychological Association last May, has been reprinted in the *Journal of Mental Science* (vol. **83**, p. 461). It raises the question of the power to retain a voluntary patient in a mental hospital if he walks out without giving the statutory notice of 72 hours. Dr. K. K. Drury, medical superintendent of the Leicestershire and Rutland Mental Hospital, outlined the facts of a particular case. A man aged 66, who had retired on pension from office work as a clerk six years before, signed a form of request incorporating the requirements of Section 1 (1) (5) of the Mental Treatment Act and was admitted as a voluntary patient. He was found to be depressed and worried, and there was a previous history of rather crude but not serious attempts at suicide. Kept at first under constant supervision, he was allowed a gradually increasing measure of parole as he improved. After two months he seemed to have become normal. Then one morning he was seen and spoken to in the ward garden, where he was permitted to walk without special supervision; but a few minutes later he was missing. He somehow climbed a 6-foot railing, found his way to the main road, and was run over by a lorry. There was no other traffic on the road. The lorry-driver, the sole witness of the affair, said that the deceased attempted to run across the road in front of the lorry. The jury at the inquest found a verdict of "suicide while of unsound mind." The dead man's widow brought an action against the mental hospital for negligence, breach of contract, and breach of warranty. She went, however, to America and did not return. The court eventually ordered that, if she did not proceed diligently with her claim and deposit £25 towards the costs, her action would be struck out. As she failed to proceed or to deposit the money, the case was automatically struck out of the lists. It had raised various legal points which were dealt with by Mr. C. E. J. Freer, clerk to the Hospital Committee, in collaboration with Dr. Drury. The patient, of course, had broken his bargain in not giving 72 hours' notice before leaving. But, as it is reasonable to suppose that persons admitted as voluntary patients are abnormal, the written undertaking has a doubtful value. Mr. Freer threw out the suggestion that the undertaking of voluntary patients ought to be fortified by an indemnity from the patient's relations against possible actions for negligence. This patient was a pensioner; if his widow could have established negligence in the supervision of his movements, damages might be awarded on a calculation of his normal expectation of life. Alternatively Mr. Freer thought Parliament should be asked to enact a definite indemnity

against mishaps of this kind. Section 16 of the Mental Treatment Act (substituting a fresh provision for Section 330 of the Lunacy Act of 1890) restricts claims for negligence unless a High Court judge thinks there is a prima facie case of want of care. These unfortunate accidents arise because the staff of a mental hospital give the patient an increasing liberty, running some risk of misadventure in the justifiable hope of re-establishing the patient's confidence in himself and rebuilding his health. There is no certainty, says Mr. Freer, that the failure of the experiment may not conceivably be regarded by the High Court as constituting a prima facie case for the hospital to answer.

If it be negligence to let a voluntary patient escape before his notice has expired, what power is there to recapture him when he has managed to leave the premises? The Mental Treatment Act contemplates a kind of contract between voluntary patient and hospital. If the patient went off and was believed to be about to commit a crime, there may be power to arrest him. But if he is not of suicidal or homicidal tendency, can he be recaptured merely for having broken an agreement? In the Mental Treatment Act of 1930 Parliament was endeavouring to secure early treatment in cases of mental instability and to avoid inflicting the stigma of certification. A voluntary patient is one who has made a written application to be received. If he wants to leave abruptly, the Act furnishes a means of putting pressure on him to stay because it prescribes that he may leave on giving the person in charge 72 hours' notice in writing. The Act proceeds to say that if the voluntary patient becomes incapable of expressing himself as willing or unwilling to continue to receive treatment, he cannot be kept for more than 28 days unless within that time either he recovers his ability so to express himself or steps are taken to deal with him as (i) a person of unsound mind, or (ii) a person likely to benefit by temporary treatment. If his mental condition deteriorates, therefore, he may be detained and regraded; but, if he shows signs of improvement and of recovering normal mental health, is it not an assault to lay hands on him when he has walked out of the premises without notice? These questions may be highly inconvenient. They nevertheless require an answer. A few years ago there were notorious awards of damages where it was alleged that persons of unsound mind were detained too long in restraint. Now, it seems, damages may be awarded if the patient is let out too soon.

PARIS

(FROM OUR OWN CORRESPONDENT)

THE CONGRESS ON BLOOD TRANSFUSION

THE first International Congress on Blood Transfusion was held in Rome in 1935. The second congress has just been held in Paris, at the Saint-Antoine Hospital and at the faculty of medicine. The organisation of this congress was undertaken by Dr. A. Tzanck, and the blood transfusion service of the Saint-Antoine Hospital provided demonstrations which complemented the rather theoretical debates at the faculty. The transfusion service conducted in London under the auspices of the British Red Cross was represented by Mr. P. L. Oliver, whose obvious familiarity with every detail of every aspect of the subject was most impressive. Several films illustrating the technique of blood transfusion were shown. Some were instructive by virtue of the efficiency of the operators who had allowed themselves to be photographed. Others were instructive in a less flattering sense; and it is to be hoped that this international meeting of blood transfusionists will do much to raise the general level of the technique of transfusion, particularly with those delegates who came to teach and who, let us hope, stayed to learn.

Four commissions were appointed to deal with as many different aspects of blood transfusion. The first commission was concerned with the grouping of blood, and the recommendations of this commission were unanimously accepted by the congress at its plenary session on Oct. 2nd. The recommendations of the second commission, which was concerned with blood preservation and the blood of the cadaver, did not fare so well at the plenary session, at which it was finally agreed to omit any recommendation with regard to the use of cadaver blood. It was evidently the sense of the congress that the time was not yet ripe for a final verdict here. The third commission reported on hæmatological problems, and the fourth commission on the problems of organisation. Prof. Gosset proved an admirable chairman at the closing plenary session, meting out blame with a blandness, and praise with a distinction, that made nearly all his utterances so many judgments of Solomon. It was agreed at the plenary session that another international blood transfusion congress must be held in the near future.

UNITED STATES OF AMERICA

(FROM AN OCCASIONAL CORRESPONDENT)

SIR ARTHUR NEWSHOLME IN NEW YORK

SPEAKING in the banquet room of the Pennsylvania Hotel in New York to-day (Oct. 5th), Sir ARTHUR NEWSHOLME addressed a crowded audience at the opening session of health officers in the sixty-sixth convention of the American Public Health Association. The general topic was the Health Department in the Field of Medicine. Sir Arthur pointed out that long before it had a recognisable health department the English Government had recognised its responsibility to provide medical care: "Right away from Shakespearean days, no impoverished person in Britain needed to suffer from lack of food, shelter, and medical care, the boards of guardians being under an obligation to supply their need." This was true even if the care provided was often scandalously imperfect. The compulsory administration of lemon juice to British sailors in 1745 introduced the elements of prevention and compulsion into medical care by the State. Vaccination in 1840 made mandatory a preventive measure for all classes of the population. As examples of his contention that "treatment and prevention are Siamese twins," Sir Arthur spoke of the period of rapid sanitary advance between the forties and the nineties stimulated by the need to control epidemics of "fever" and cholera; and of the development of medical care by medical officers of health acting under the public health committees in recent years. The separation of the administration of the National Health Insurance Act from the public health service he regards as artificial and looks forward to the time when private medical practitioners can be described as "medical officers of health within the range of their own medical practice." The present position is, however, significant as an example of what is a modified State service of medicine with the retention of all that is good in private medical practice. Sir

Arthur would not apply English experience to U.S.A., but held that in some manner a Christian commonwealth must provide medical care to all those who need it.

Dr. CHARLES H. GOODRICH (president of the Medical Society of the State of New York) preceded Sir Arthur in the programme. He recognised that so far as the encroachment of public health upon the field of medicine goes established custom makes law but asked for consultation between public health officers and the medical societies before new precedents are created. The general practitioner should be interested and educated in preventive medicine. Public health departments should supply diagnostic but not treatment clinics for venereal disease. However, doctors treating such diseases should have special qualifications recognised by the State medical society. Health departments should encourage the public to go to their doctors for periodic medical examinations.

Discussion was opened by Dr. JOHN A. FERRELL, who said that in the early days the health department was like a volunteer fire department, all doctors aiding in emergency. We now have paid health departments. Science has advanced and we have a basis of procedure not only for preventing outbreaks of disease but also for controlling them. To attain Sir Arthur's objective of caring for every individual we need larger appropriations and more stable government to secure tenure of health officials on a merit basis.

Dr. ARTHUR T. MCCORMACK (health officer of Kentucky and president-elect of the association) said that he was controlled in Kentucky by two forces: the State medical society of which he is secretary and the board of health. All public health work in Kentucky for fifty years has been approved by the State medical society.

Surgeon General PARRAN (president of the association) said that never had the American Public Health Association so many members, never had there been so large an attendance, never had its problems been so great nor public interest in them so widespread as to-day. He held it inevitable that the health officer must concern himself with the provision of medical care. The ideal of health protection is coeval with those of liberty and the pursuit of happiness The method is of much less importance than the objective. Wherever the discussion on method is most acrimonious we find least progress being made toward the objective.

Dr. KOEHLER (Milwaukee) referred briefly to his recent visits to England and Russia from which he concludes that when the people demand medical care they will get it, whatever the doctors or the health officers may think about it.

THE SERVICES

R.A.F. Volunteer Reserve

A NEW branch of the R.A.F. volunteer reserve is to be established for medical officers as a reserve in times of national emergency. Candidates must be qualified to practise medicine and surgery, be registered under the Medical Acts, and be below the age of 40. The initial period of service will be five years. Candidates will normally be entered in the rank of flying officer and will be eligible for promotion to flight lieutenant after two years approved service. Those with exceptional qualifications may be appointed in a rank higher than flying officer. Officers will be required in their first year of service to attend an Air Force unit for 18 working days training in the duties of a medical officer. In subsequent years they will be liable, if called upon, to attend for 12 working days annually. They will receive a retaining fee of £15 a year, and the pay and allowances of their rank during periods of training; also on entry an outfit allowance of £25. Applications to the secretary, Air Ministry (S.7.e), Kingsway, London, W.C.2.

ROYAL NAVAL MEDICAL SERVICE

Surg. Lt.-Comdr. P. B. Jackson to *Britannia*.

Transfer of Surg. Lt. T. F. Davies to Permanent List (*Lancet*, Sept. 18th) cancelled.

Surg. Lt. T. F. Miles transferred to Emergency List.

To be Surg. Lts. (D): W. H. Bain, R. W. Ellis-Smith, J. B. Inverdale, and P. V. Peatfield.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Lts. C. J. T. Watson to *Victory* for R.N.B., and E. C. Johnson to *Curacoa*.

Surg. Sub-Lt. D. S. Macphail promoted to Surg. Lt.

ARMY MEDICAL SERVICES

Col. C. J. Wyatt, late R.A.M.C. (Assistant Director of Medical Services at Catterick Camp), having attained the age for retirement, is placed on ret. pay.

Lt.-Col. M. J. Williamson, M.C., from R.A.M.C. (A.D.M.S. at Aldershot) to be Col.

Col. A. D. Fraser, D.S.O., M.C., of the R.A.M.C. Training Establishment at Aldershot, promoted to Major-General, and to be Deputy-Director of Medical Services, Southern Command, India

ROYAL ARMY MEDICAL CORPS

Maj. G. D. Harding to be Lt.-Col.

REGULAR ARMY RESERVE OF OFFICERS

Capt. G. B. M. Heggs from Supp. Res. of Off., R.A.M.C., to be Maj.

Lt.-Col. T. J. Mitchell, D.S.O., having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

ROYAL AIR FORCE

Wing Comdr. V. S. Ewing to Princess Mary's R.A.F. Hospital, Halton.

Flight Lt. J. M. Ritchie is promoted to the rank of Squadron Leader.

Flight Lts. F. H. Peterson to Air Armament School, Eastchurch; A. W. Smith to No. 1 Flying Training School, Leuchars.

Flying Offrs. promoted to rank of Flight Lt.: P. A. Lee and J. R. Cellars.

Flying Offr. H. V. Thomas to Medical Training Depôt, Halton.

INDIAN MEDICAL SERVICE

Lt.-Cols. to be Cols: Bt.-Col. A. A. C. McNeill, M.B., K.H.S., Bt.-Col. F. F. S. Smith, A. C. Munro, G. R. Lynn, D.S.O., W. A. M. Jack, O.B.E., and E. G. Kennedy.

Lt.-Col. C. Newcomb, C.I.E., retires.

Majs. to be Lt.-Cols.: P. F. A. Grant, O.B.E., J. G. McCann, C. S. V. Ramanan, and E. T. N. Taylor.

Lts. (on prob.) to be Capts. (on prob.); L. S. F. Woodhead and R. B. Davis.

Maj. A. Rosenbloom, I.M.S., is granted one year's leave from Dec. 1st and will vacate his appointment at Army H.Q. on Feb. 2nd.

Indian Medical Department.—Maj. (Sen. Asst. Surg.) H. B. Rosair retires.

DEATHS IN THE SERVICES

Surg. Capt. ARTHUR HARRY HINGSTON VIZARD, R.N., who died on Oct. 5th at Southsea, was born in Antigua, West Indies, in 1871, was educated at Hurstpierpoint College and Edinburgh, qualifying M.B. Edin. in 1893 and M.D. in 1901. He was surgeon at the Royal Naval Hospital, Plymouth, from 1901–03, and at Bermuda from 1905–08. From 1910–21 he served in H.M.S. *Queen*, *Zealandia*, *Albemarle*, *Hibernia*, and *Fisgard*. In 1922, when surgeon-commander, he was appointed to the Navigation School at Portsmouth.

CORRESPONDENCE

"RELAPSE" FOLLOWING SYMPATHECTOMY

To the Editor of THE LANCET

SIR,—I have read the paper by Mr. Simmons and Prof. Sheehan in your issue of Oct. 2nd, on cases of Raynaud's phenomenon relapsing after sympathectomy, with interest and profit. The observations which they describe, and which seem to show that a recurrence of symptoms in their patients after a period of freedom from them following sympathectomy (the relapse under consideration) is due to a return of sympathetic vasomotor tone, are of special interest and value.

There are, however, two references to my own writings in their paper upon which it is necessary for me to comment if my own observations and conclusions are properly to be understood.

"Lewis (1929) failed to obtain any such rise in skin temperature in several cases of severe Raynaud's disease (unoperated), in which he had blocked the ulnar nerve at the elbow. He interpreted his findings as a proof of the existence of a local fault in the digital vessels, these remaining in spasm despite the removal of all vasoconstrictor impulses. The severity of the condition in his patients, who showed ulcerative gangrene at the tips of the fingers, suggests that there may have existed a local pathological lesion in the digital vessels, which would complicate the picture of simple vasomotor spasm."

I want first to impress the fact that my observation consisted of anæsthetising the ulnar nerve, and thus paralysing the vasoconstrictor nerves, *while the patient was actually displaying an attack of lost circulation to the little finger*, and that in the cases described this failed to restore or failed promptly to restore the circulation to this finger, as it undoubtedly would have done had the attack been due to abnormal vasomotor impulses. Incidentally, though the index-fingers had shown tiny necrotic scales, the tested little fingers had always been quite free from ulceration or gangrene. It was upon this and other evidence that I concluded in my first paper that Raynaud's original hypothesis is wrong, and that the fault in cases of a kind that he described is not in the vasomotor nervous system but is a fault in the vessel wall. This local fault, as I have myself stated, is in some cases an obstructive lesion of the digital arteries; in other and milder cases, in which ulnar anæsthetisation has also failed to abolish the attack, this *form* of local fault is less easy to accept, the patients presenting neither nutritional change nor sign of obliterative vascular disease in any of the fingers (see, for example, Lewis and Pickering, *Heart*, **16**, 44, and comment in *Clin. Sci.* **1**, 335). Interesting as the authors' observations are to me, I can find nothing in their paper which opposes the view for which I am responsible—namely, that these cases of Raynaud's phenomena are not due to abnormal innervation of the vessels.

The second point is this. In discussing relapse of the patient after sympathectomy, the authors say:

"Lewis (1929) believes that the explanation is a local fault in the digital vessels."

and later:

"Yet it is difficult to believe that Lewis's theory accounts for the relapses following sympathectomy. . . ."

I desire to make it quite clear that I have never discussed relapses in the sense which Mr. Simmons and Prof. Sheehan use the word. I have held, and continue to believe, that a local fault *does* explain, and alone explains, why attacks of Raynaud's phenomenon can be induced in the fingers of patients within a few days of full cervical sympathectomy. This is not a relapse of the attacks; it is a failure of sympathectomy to prevent attacks occurring, and as such constitutes a further and powerful evidence that the origin of the corresponding attacks is not to be found in the sympathetic nervous system. I gladly agree that Mr. Simmons and Prof. Sheehan have provided evidence suggesting a return of sympathetic innervation in their patients by regeneration after sympathectomy, and that such a return of innervation would increase the predisposition of their patients to attacks of lost circulation to the fingers.

I am, Sir, yours faithfully,

THOMAS LEWIS.

University College Hospital, W.C., Oct. 7th.

MEDICAL PEACE CAMPAIGN

To the Editor of THE LANCET

SIR,—The first national congress of the International Peace Campaign will be held in London from Oct. 22nd to 24th. A medical commission has been arranged under the auspices of the Medical Peace Campaign and the following subjects have been put down for discussion: (1) To consider the prevention of war in all countries by medical international action; (2) To discuss the attitude of the medical profession towards all state regulations affecting war. It is hoped that your readers may feel sufficiently interested to come and express their opinions at the meeting which will be held from 2 to 6 P.M. on Saturday, Oct. 23rd, at University College.

I am, Sir, yours faithfully,

STELLA CHURCHILL,
Honorary Secretary, Medical Peace Campaign.

8, Cumberland-terrace, N.W.1., Oct. 8th.

HOSPITAL WARDS AS LATRINES

To the Editor of THE LANCET

SIR,—I claim your indulgence (after fifty years of county hospital work as a resident and honorary surgeon) to expound my views concerning ward hygiene. My long experience of hospital governors and committee meetings is that they generously support all things that are refinedly visible and burke such matters as ward hygiene, the details of which, at a mixed committee meeting, would have no chance against a proposal (say) of a ward cinema. Hospital physicians and surgeons do know that a ward depends for its medical and surgical success on having a continuous intake of fresh air. Why does the medical profession allow a living, a sleeping room to be used, day and night, as a latrine?—I respectfully submit that my profession has not thought about it. So long as a ward has a clean appearance and efficient nurses, they know nothing of a galaxy of bed-pans processing day and night over the floor and beds in a conjoint sleeping, feeding, and living-room.

St. George's Hospital is being reconstructed—a great opportunity to do something for the future that does not carry the defects of the past. Without daring to define particulars that require an architect, I suggest that reconstruction of circular wards with a central latrine would meet present objections by

the simple procedure of wheeling in a bed to this room set apart. Present-day wards can be reconditioned by building latrine balconies.

Because of my ignorance, I feel I am a voice crying in the wilderness of finance. Let some well-known authority consider my suggestions, and if maybe he sees virtue in my proposal he can trust a generous government and public to do their best to find the money, and the provision of a special sanitary squad in every institution to relieve surgical nurses of work that should never be touched by them. I am, Sir, yours faithfully,

W. BURROUGH COSENS.

Tunbridge Wells, Oct. 10th.

NASAL SINUSITIS IN CHILDHOOD

To the Editor of THE LANCET

SIR,—Mr. Ivor Griffiths's experiments will have to be repeated with far greater precautions. At present his results are inconclusive, and not borne out by clinical facts. Unilateral antral disease is not accompanied by a unilateral tonsillitis, cervical adenitis due to other causes does not involve the tonsils, and malignant disease of the cervical glands does not spread into the tonsils. These results should follow in a reasonable proportion of cases if his theory be correct.

Accurate diagnosis in cases of nasal suppuration would avoid the unnecessary removal of the tonsils. To condemn an operation because it has been used in cases incorrectly diagnosed is illogical.

I am, Sir, yours faithfully,

Wimpole-street, W., Oct. 11th. HAROLD KISCH.

MY POST-BAG

To the Editor of THE LANCET

SIR,—Cannot something be done to stop the overwhelming discharge (I use the word advisedly!) of advertising matter that cumbers every mail? It has all to be opened and read and the bits of blotting-paper put on one side and the rest thrown away. The blotting-paper is thrown away to-morrow. My own modest average useless mail has amounted to 20 items weekly for many months since I recorded it. There is no time to read any of it; I cannot say what free samples of this or that, what specimen copies of the other, I have missed. What an enormous waste it must represent, counting up the cost of printing and compiling the address lists with such painstaking inaccuracy, posting to abandoned addresses, to say nothing of the enforced labour of unwilling forwarders and collectors and deliverers: and all to no purpose!

Now surely it must be valuable to manufacturers and agents to know which of their prospects (and I suppose I must be a prospect, or the commercial world is mad) are likely to buy anything, and which are likely not. This is a copy of a circular letter which I have aggressively been sending to every advertiser who has bombarded me these past few weeks:

To the Advertising Manager,
So and So Ltd.

DEAR SIR,—

CIRCULAR ADVERTISING BY POST

I enclose the relevant part of one of your circulars of which I receive many from time to time.

I hope I may say without offence that I am never attracted to products advertised by post: there is simply no time to study the literature, which thus gets thrown away on arrival.

You will I am sure appreciate that it is as much to save you trouble and expense as to save myself similarly that I ask you to have the courtesy to remove this name and address from your books.

I am, Sirs, your obedient Servant.

I am keeping a roll of the addresses, and if any fail to observe my request they shall have their things returned in unstamped envelopes!

I enclose my card, and must sign myself

Oct. 7th. POSTMAN'S FRIEND, M.R.C.S.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 2ND, 1937

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 0; scarlet fever, 2503; diphtheria, 1348; enteric fever, 32; pneumonia (primary or influenzal), 675; puerperal fever, 32; puerperal pyrexia, 171; cerebro-spinal fever, 14; acute poliomyelitis, 30; acute polio-encephalitis, 7; encephalitis lethargica, 9; dysentery, 40; ophthalmia neonatorum, 102. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on Oct. 8th was 3047, which included: Scarlet fever, 850; diphtheria, 984 (diphtheria carriers, 21); measles, 85; whooping-cough, 326; puerperal fever, 9 mothers (plus 4 babies); encephalitis lethargica, 282; poliomyelitis, 13. At St. Margaret's Hospital there were 23 babies (plus 8 mothers) with ophthalmia neonatorum.

Deaths.—In 124 great towns, including London, there was no death from small-pox, 1 (0) from enteric fever, 8 (1) from measles, 5 (0) from scarlet fever, 8 (0) from whooping-cough, 24 (5) from diphtheria, 56 (11) from diarrhœa and enteritis under two years, and 25 (2) from influenza. The figures in parentheses are those for London itself.

Sunderland reported a death from enteric fever. Manchester had 3 fatal cases of measles; Liverpool 3 fatal cases of whooping-cough, Middlesbrough 2. Diphtheria was fatal in 17 great towns, none reporting more than 2. Liverpool had 7 deaths from diarrhœa, Leicester 4, Newcastle-on-Tyne 3.

The number of stillbirths notified during the week was 259 (corresponding to a rate of 39 per 1000 total births), including 28 in London.

THE LANCET 100 YEARS AGO

October 14th 1837, p. 90.

From a leading article.

How often shall we have to entreat gentlemen to lay aside vague generalities and sweeping assertions for the more sober, but infinitely more useful, enumeration of facts. It is this propensity in men to generalise rapidly, without sufficient foundation, and to announce large and comprehensive problems as the result of their experience, without furnishing a tittle of the evidence upon which their general axioms have been built up,—it is this propensity, we repeat, which prevents medicine from making any steady progress, and which has hitherto placed it so far behind what are called the exact sciences. Unless a more philosophical method be pursued, unless facts be observed with care, multiplied with assiduity, and then submitted to the analytical scrutiny of a sound judgement, the science of medicine will ever remain as it is, for the most part, at present, a mass of conflicting facts, a theory incapable of demonstration. . . . Speakers and writers in the profession are continually putting forward opinions which they attempt to support only with proofs produced in so vague a manner, that, on enquiring into the evidence in order to estimate its value, nothing certain is discovered, and the mind is again left to wander in search of truth, wearied with disappointments, and almost hopeless of attaining certitude. . . .

OBITUARY

SIR JOHN THOMSON-WALKER, M.B. Edin., F.R.C.S. Eng.

A GREAT urologist and a forceful personality have gone from us with the death on Oct. 5th of Sir John Thomson-Walker. He died at Aviemore, Inverness, after a heart attack, at the age of 67.

John William Thomson Walker, son of J. H. Walker, J.P., of Newport, Fife, was educated at Dundee and Edinburgh, taking prizes and medals at each stage of his medical course. After graduating in medicine at Edinburgh University in 1894, he was house surgeon to the Glasgow and Dundee infirmaries. He obtained the F.R.C.S. Eng. in 1899 and studied at Jena and in Vienna, where he worked under Prof. Zuckerkandl whose influence (they remained lifelong friends) had much to do with his taking up urology as a specialty. On his return he was appointed pathologist to Paddington Green Children's Hospital, but only held this post for a short time. In December, 1901, he went to St. Peter's Hospital as surgical assistant to Mr. Hurry Fenwick, and two years later he became assistant surgeon there and remained for 28 years on the active staff. He had also been on the staff of the Hampstead General Hospital, but resigned in 1919 when he was appointed senior urologist and lecturer in urology to King's College Hospital. During the war he was surgeon to King George Hospital, to King Edward VII Hospital for Officers, and consulting urologist to the Star and Garter Home.

SIR JOHN THOMSON-WALKER
[Photograph by Elliott & Fry

His writings covered a wide field. His earliest papers were on the surgical anatomy of the prostate and the operation of prostatectomy. In his Hunterian lecture of 1907 he spoke of the renal function in its relation to surgery, being the first to attack the subject from the clinical aspect and to correlate symptoms with pathological findings. In 1914 appeared "The Surgical Disease and Injuries of the Genito-Urinary Organs," which became at once the standard work in the English language. He also wrote important articles in a number of systematic text-books and for many years the articles on urinary surgery in the Medical Annual. In 1926 he was Silvanus Thompson lecturer to the Röntgen Society, and in the Lettsomian lectures of 1930 he reviewed the progress of prostatic surgery.

Thomson-Walker took a vigorous part in forming the section of urology in the Royal Society of Medicine, of which he was the third president (1922). He was also an active member of the Société Internationale d'Urologie, being in succession British delegate, vice-president of the second congress (Rome, 1924), and president of the fifth (London, 1933). He was also an honorary member of the urological societies of America and France, and of the Rome Academy. He received the O.B.E. in 1919 and was knighted in 1922, when he took the additional surname of Thomson. He was also a deputy-lieutenant for the county of London.

He was a man of wide culture, and an omnivorous reader. He travelled extensively in Canada and the United States. His chief recreations were shooting and fishing. He was a keen gardener, being specially interested in arboriculture. He was also a collector of prints, of which he had a very fine collection.

In 1909 he married Isabella, daughter of Sir Michael Nairn, Bt., and leaves a son and a daughter.

Mr. John Everidge writes: "My first contact with Thomson-Walker was, I think, in 1910 when I attended a demonstration by him upon pyelography, a newly imported method of urological investigation, which had been undergoing a fair trial in his hands. The meeting took place before a small medical society on a broiling mid-summer afternoon; the ill-fitting blinds failed to shut out daylight, the lantern was poor; the operator muddled the slides and smeared them with his perspiring hands. Thomson-Walker showed no trace of annoyance or disappointment. Once I noticed a flicker of that pitying smile of generous human-kindness which I subsequently learnt to know so well. In that hour I recognised a character of perseverance and endurance, to be amply substantiated in many years of association after the long war interval.

"Soon after peace was signed King's College Hospital found itself for the first time in full possession of its new home. Reconstruction in teaching methods and personnel was as necessary a part of re-equipment as a thoroughly up-to-date hospital and medical school; and a committee of reconstruction decided that special departments in urological and orthopædic surgery should be inaugurated and the two leading specialists in these subjects invited to join the teaching staff. Thomson-Walker and Fairbank were the unequivocal choice, and the staff of King's was at once made the richer by their acceptance. From the moment of his arrival to his retirement in 1929 through ill health Sir John served King's loyally and faithfully. In spite of his other hospital appointments, his committees, and a very large consulting practice, he always had time for all and more than the work that fell to his lot. No matter how busy, he never was in a hurry and always would stay to demonstrate an interesting point, to complete an amusing anecdote or to listen to somebody else's, to give advice and encouragement to beginners and wise counsel to his colleagues.

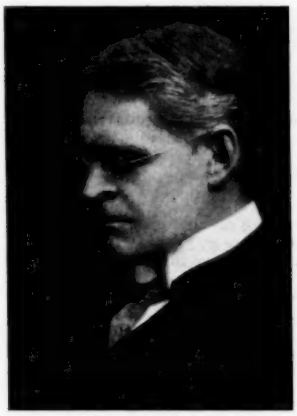
"His surgical technique was masterly and methodical to a degree. It was an education to note with what gentleness he handled the tissues; every step of an operation was carefully conceived and executed, and each operation was so standardised that assistance was simple, straightforward, and foolproof. The merits of his operative ability were reflected in his amazing results. Under favourable conditions he proved the possibility of reducing the mortality of suprapubic prostatectomy to the neighbourhood of 2 per cent. Upon the question of specialisation in urology he held decided views. Specialisation should be an evolutionary process. No urological surgeon could be worthy of the name who had not been through a thorough groundwork in general surgery; otherwise his judgment would be warped, his operative ability restricted. At length,

having qualified to become a urologist, he must discard general surgery, for no urological surgeon can keep pace with the improvements in technique, solve the many difficulties in the conduct of urological cases, or justify his status by adequate reading and writing if his time and energy are dissipated in other work. His ambition was to see urology in Great Britain elevated to a plane not equal to, but higher than that of any other country. Hundreds of urologists throughout the Empire owe their inception to his enthusiasm and encouragement. As a pioneer in the foundation of the urological section of the Royal Society of Medicine, he helped to establish the body accepted to represent British urology of to-day. All of us who worked under him feel we have lost a great master and a true friend."

WILLIAM ST. CLAIR SYMMERS, M.B. Aberd.

Prof. St. Clair Symmers, who died in Belfast at the age of 70, had retired in 1930 from the Musgrave chair of pathology in Queen's University in which he had succeeded Lorrain Smith in 1904. For many years of this long period he was dean of the medical faculty and one of the best-known figures in the life of the medical school.

William St. Clair Symmers was born in 1863 of Scottish parents in South Carolina. His father was a medical graduate of Aberdeen University, who married and emigrated to the States. Symmers was the eldest of his family. One of his brothers was a lawyer practising in New York, and another brother, Douglas, became pathologist to the Bellevue Hospital in the same city. When seventeen years of age he was sent to Aberdeen to study medicine; on his way there his sight became affected, and while a student he could hardly read at all. He had to depend on lectures and on fellow students reading to him. While at college he became an enthusiastic pathologist, and he and a fellow student vowed to apply for the chair of pathology when it became vacant. (They both applied and Symmers was beaten.) After qualifying in 1887 he assisted a country practitioner in the north of Scotland, and then at Shaftesbury in Dorset. A pathologist, he held, should acquire sound clinical knowledge, or he could not help clinicians to solve their problems. He then worked at Pasteur's laboratory in Paris, at Birmingham, and the Lister Institute. While at the latter place he was sent to Egypt to study the problem of cattle-plague, being allowed £18,000 per annum for his laboratory and all his expenses. After two years he reported to Lord Cromer that this work was done, but he remained for a time at school and there acquired his knowledge of bilharzia. Many of the text-books used to-day in the Cairo medical school are illustrated with his drawings. In Cairo he got to know Elliot Smith and they married sisters.



PROF. SYMMERS

Symmers was a voracious reader. He followed all that was published in his own subject, and kept abreast of chemistry, philosophy, history, and literature. His knowledge of Latin was first rate; he could recite most of the Æneid. As a teacher he had the gift of clear and unambiguous explanation, and was careful to distinguish between facts and theories. His careful reading of the literature enabled him to help puzzled practitioners. For instance, when Gougerot published his work on sporotrichosis, which solved the problem of *gommes-scrofuleuses*, Symmers at once began to look for that disease in Belfast, and as a result many mistaken diagnoses of malignant disease, especially of sarcoma, were avoided. Shortly before the war he investigated the ability of urea to stop microbic growth without damage to animal cells. His memory was encyclopædic, and even his close friends were often surprised at the depth of his learning. Two of these friends write: "He certainly was one of the biggest men there has ever been here in Queen's College, Belfast, and the students, who have the knack of giving appropriate nicknames, knew him as 'The Man.'"

JOHN ALLMAN POWELL, M.D. Dubl.

Dr. Powell, who died on Sept. 29th at the age of 53, had been prominent in the life of Cheltenham for the last twenty-five years. Born at Roscrea, co. Tipperary, the son of Dr. B. Castles Powell, he was educated at St. Columbia's College, Dublin, before going to Trinity College for his medical training where he qualified with honours in 1907. He was Hudson scholar at the Adelaide Hospital and held resident appointments there, and at the General Hospital, Wolverhampton. In 1913 he joined Dr. J. H. Blakeney in partnership at Cheltenham, becoming honorary physician and anæsthetist to the general and eye hospitals and consulting physician to other neighbouring institutions. During the war he served several years in India after being recruiting medical officer for the town. A keen athlete in his early years he lost an eye while playing hockey in 1921, remaining a keen rider and angler. He also took part in social and church affairs in Cheltenham and district. In 1914 he married Nora Kathleen, daughter of G. N. Oulton, K.C., who survives him with four daughters.

HARRY SWIFT, M.D. Camb. and Adelaide

Dr. Harry Swift, who died in North Adelaide on Sept. 30th in his eightieth year, was for many years physician to the children's hospital there, and for a time dean of the medical faculty in the University. He was also physician to the Adelaide Hospital and lecturer in medicine in the medical school. He was educated at Caius College, Cambridge, taking his natural sciences tripos in 1880 and his clinical study at St. George's Hospital from which he qualified in 1882. In 1914 he came into prominence when he reported to the tenth Australasian medical congress at Auckland 14 cases of what he then thought was a new disease—a condition occurring in infants, characterised by swollen red hands and feet and disordered digestion, and followed by notable muscular weakness—to which he gave the name erythrœdema. Actually, although this paper constitutes the first printed account of what is now known as pink disease, the condition had been noticed in Australia many

years previously. His name however fully deserves to be perpetuated in connexion with a clinical picture so characteristic that it seems strange it should have passed unrecognised for so long.

DR. HUNTER WORKMAN

William Hunter Workman, who died on Oct. 10th at the age of 90, will be remembered for his many daring explorations and ascents. He once made a journey of nearly 2000 miles through Little Tibet, and he ascended many Himalayan peaks of over 20,000 feet, discovering the ice-col connecting the Siachen and Kabery glaciers. But it is worth putting on record that he practised medicine in Worcester City, Mass., from the time he qualified at Harvard in 1872 until 1889 when he finally retired from medicine on account of ill health and began, with his wife, to travel Europe, Asia, and Africa on a bicycle. The transactions of the Royal Geographical Society over many years contained accounts of these expeditions, and he will be specially remembered for two books, "In the Ice World of the Himalaya" (1900) and "Through Town and Jungle" (1904). Geographical societies of all countries recognised his service to exploration by making him their honorary member.

Sir AUGUSTUS BROOKE-PECHELL, who died at Boston Spa on Oct. 6th at the age of 80, was born at Shrewsbury, qualified at Edinburgh University in 1881, and became an army surgeon in the following year, retiring as Lieut.-Colonel, R.A.M.C. in 1907. During the war he was re-employed as deputy surgeon at the Royal Hospital, Chelsea. In 1888 he married Mabel Marion Anderson, daughter of Major-General George Briggs, Madras Army, and in 1904 he succeeded his brother as seventh baronet.

MEDICAL NEWS

University of Cambridge

The title of the degree of M.B. has been conferred on C. E. Peaker of Girton.

The university will eventually benefit to the extent of about £15,000 under the will of the late Mr. William Charles Wilson. The council of the senate have recommended that the money shall be used to provide an extension of the psychological laboratory. If this is done the Rockefeller Foundation have promised to give £11,360, spread over 5 years, towards developing the department of experimental psychology.

University of Bristol

On Tuesday, Oct. 19th, at 8.30 P.M., Prof. V. B. Green-Armytage will deliver the Long Fox memorial lecture at the Wills Physics Building. He will speak on the Debt of Western Medicine to the East.

University of Sheffield

At recent examinations the following candidates were successful:—

FINAL EXAMINATION FOR THE M.B., CH.B.

Reginald Cuddeford, Norman Exell, Irving Kossack, C. J. Wells, and Samuel Wolfson.

A grant of £400 per annum has been made by the Yorkshire council of the British Empire Cancer Campaign for a research assistant in the department of pathology.

Mrs. Helen Mellanby, Ph.D., has been appointed part-time demonstrator for medical and dental students in the department of zoology, and the following have been appointed external examiners in the faculty of medicine: Profs. D. M. Blair (anatomy), H. S. Raper, F.R.S. (physiology), A. D. Macdonald (pharmacology), J. H. Dible (pathology and bacteriology), J. J. Jervis (public health), and J. Glaister (forensic medicine).

British Institute of Radiology

Queen Mary will be present at the opening ceremony of the annual congress of this institute on Dec. 8th at the Central Hall, Westminster, and members are asked to apply for tickets of admission to the ceremony to the general secretary, 32, Welbeck-street, London, W.1. The congress will be open till Dec. 10th and an exhibition of X ray apparatus will be held in the same building under the auspices of the British X ray industry.

Royal Dental Hospital of London

School of Dental Surgery.—The twenty-eighth annual At Home of this school will be held on Saturday, Nov. 20th. The morning, from 9.30 to 12.30, will be devoted to demonstrations at the in-patient department at Charing Cross Hospital and in the departments of the Royal Dental Hospital, where in the afternoon there will also be various exhibitions.

On the same evening at 7.30 the dinner of past and present students of the hospital will be held at the Trocadero. Mr. F. Coleman will preside.

Royal College of Surgeons of England

The annual meeting of fellows and members will be held at this college, Lincoln's Inn-fields, London, W.C., on Thursday, Nov. 18th, at 4 P.M.

A series of demonstrations of specimens in the museum will be opened on Monday, Oct. 18th, when Dr. L. W. Proger will show pathological specimens. He will give further demonstrations on Oct. 25th and on Nov. 1st. Dr. A. J. E. Cave will also give three lectures. He will speak on the anatomy of the pelvic floor on Oct. 22nd, on the surgical anatomy of the middle ear on Oct. 29th, and on the anatomy and physiology of the thyroid gland on Nov. 5th. The lectures will be held at 5 P.M. at the College, Lincoln's Inn Fields, London, W.C., and they are open to medical practitioners and advanced students.

Royal Microscopical Society

A meeting of this society will be held on Wednesday, Oct. 20th, at B.M.A. House, Tavistock-square, W.C., at 5.30 P.M., when Major G. Burrard will speak on the microscope in the identification of firearms.

Guy's Hospital

Mr. T. J. Evans, lecturer in biology, has been appointed dean of the medical school in place of Prof. T. B. Johnston, who succeeds Mr. H. L. Eason as medical superintendent.

British College of Obstetricians and Gynæcologists

The dinner of the College will be held on Friday, Oct. 22nd, at Claridge's, at 8 P.M., when the official guest will be Sir John Simon, Chancellor of the Exchequer. Sir Ewen Maclean, the president, will be in the chair.

Royal Eye Hospital

Applications are invited for a research scholarship tenable at this hospital which is of the value of £100 a year. Further information may be had from the dean of the medical school at the hospital, St. George's-circus, S.E.1, to whom applications should be sent by Nov. 13th.

Hampstead General and North-West London Hospital

In opening a series of post-graduate lectures to be held at this hospital during November and December, Sir Arthur MacNalty will speak on the medical work of the Ministry of Health. The address will be given at the hospital on Wednesday, Oct. 27th, at 4.30 P.M.

Royal Institution of Great Britain

On Dec. 3rd, at 9 P.M., Prof. Irvine Masson, who holds the chair of chemistry in the University of Durham, will give a Friday evening discourse on iodine. The Christmas course of six lectures for children will be given by Mr. Julian Huxley, D.Sc., secretary of the Zoological Society of London, on rare animals and the disappearance of wild life. They will be held at 3 P.M. on Dec. 28th, 30th, Jan. 1st, 4th, 6th, and 8th.

St. Thomas's Hospital Annual Dinner

Some 160 old students and guests attended the dinner held on Oct. 8th at the Dorchester Hotel. Mr. J. S. Fairbairn, the chairman, proposing The Hospital and Medical School said he hoped to hear from those who responded to the toast how the hospital and school were doing in these critical times, when the pre-eminence of the voluntary hospitals was being challenged by their rate-supported rivals. It was wrong to say that they had had their day, for he was sure they would adapt themselves to the change of circumstances. In their triple function of treatment, training, and research, they had had a long start, but neither this nor their great tradition was enough. It was a good sign that the voluntary hospitals had already begun to coöperate with local authorities—e.g., in the venereal disease, tuberculosis, and maternity services. Another was the provision of clinical material for teaching, of which the outstanding example was the British Post-graduate Medical School. He had admired in Toronto the administration of the city hospital by a council of six—two members each being provided by the hospital, the university, and the local authorities. St. Thomas's had been among the first hospitals to establish a social service department, and he felt that this kind of work enlarged the whole outlook of medicine; the need for it was apparent, for when Miss Anne Cummins came to the hospital 32 years ago she was its only social worker; when she died last year there were twenty. She also began what was the forerunner of all infant welfare centres. Owing to Clutton's foresight the physiotherapeutic department was also among the first of its type. In his own experience, therefore, he had seen ample evidence of the ability of St. Thomas's to keep abreast of the times. Sir Arthur Stanley, treasurer of the hospital, responding to the toast, said that his concern with keeping the hospital up to date was on a lower plane, having to do with organisation and finance. In the past year, through the generosity of Lady Riddell, they had completed the new nurses' home to be opened by Queen Mary on Oct. 14th. Sir Arthur went on to compare the sums spent to-day on maintaining the equipment and buildings with those of twenty years ago when he first became treasurer. He found that they had spent £526,000 in that period, without depreciating their resources; they had also to find annually an additional £20,000 over and above what they had from endowments. This alone was a tribute to the support given by the public. There was no need to talk of "the fight of the voluntary hospitals"; so long as they deserved the public's help, so long would it be forthcoming. Prof. L. S. Dudgeon, dean of the medical school, who also responded, summarised the changes and achievements in the hospital during the past year. In the medical school the large new institute for experimental medicine was a much-needed improvement. There was a serious lack of coördination between the voluntary hospitals, which was greater to-day than ever before. In medical education, however, the presence at the dinner of Mr. W. Girling Ball and Prof. T. B. Johnston, deans of St. Bartholomew's and Guy's respectively, was evidence of a better coöperation between St. Thomas's and those medical schools. The fear that the others would be isolated had proved groundless, and there was now a close bond of union between hospitals that had formerly been rivals. Sir Ewen Maclean responding on behalf of the guests, said that one could always tell a Thomas's man, though one could not tell him much; he thought that they owed this partly to their ancient traditions. Dr. A. E. Russell concluded the speeches with a gracious tribute to the chairman.

Battersea General Hospital: Festival Dinner

Sir Harry Brittain presided at the first festival dinner of the Battersea General Hospital held at Claridge's on Oct. 6th. In proposing The Hospital he stressed the advantage of publicity and recounted how the diffidence of various medical bodies had gradually been overcome. Battersea Hospital was an example of how a deserving institution lacked support through being almost unknown to the public. It was the only hospital in Battersea and served a population nearly as great as that of Southampton. In the past year 63,000 out-patients had been tended. The hospital was well organised and economically run, and had a fine reputation as a training centre for nurses. There was a deficit last year on revenue account of £900; no rebuilding or extensions were proposed but the money was needed to cover ordinary expenditure. Before resuming his seat Sir Harry announced a donation of £500 from Lord Ernest Hamilton, president of the hospital, and later in the evening the collection of a sum of over £1500. Mr. J. R. Lee in asking Lady Brittain to present prizes and certificates to the nurses paid tribute to the matron, Miss B. A. Horsman; 100 per cent. successes at the State examination had been obtained. Sir Harold Bellman, chairman of the hospital, proposed The Visitors and Viscount Curzon responded. Lord Ernest Hamilton proposed The Chairman.

Society of Public Analysts

At a meeting of this society on Oct. 6th a paper was read by H. C. Lockwood on the fluorine content of various food products. The amounts he had found in many substances, such as biscuit, gelatin, flour, glucose, cocoa, and egg-yolk, were nil or insignificant (0·5 to 2 parts per million), but the observation of Reid, that tea contained appreciable amounts of fluorine, had been confirmed. Thus China tea contained 40, and Indian tea 60 parts per million. Approximately 75 per cent. of the total fluorine present would be found in an infusion made with tea. F. W. Edwards and H. R. Nanji said they had found that much of the "coffee" sold in restaurants and similar places is prepared from sweetened coffee and chicory extracts or from coffee and chicory mixtures. In the analysis of coffee infusions use was made, for calculation purposes, of certain ratios, particularly those of extractives to ash, extractives to caffeine, and ash to caffeine, which are found not to exceed certain limiting values for genuine coffee. D. W. Duthie read a paper on the determination of tannins in cacao kernel.

The Evans' Biological Institute

Lord Derby is chancellor of Liverpool University, and in that capacity formally opened, on Oct. 6th, extensions to the Evans' Biological Institute at Runcorn which have just been completed and equipped. The institute is a private enterprise, owned and directed by Evans Sons Lescher and Webb Ltd. of Liverpool and London, but it was fitting that the chancellor should perform the opening ceremony, if only because it was founded by the Liverpool Institute of Comparative Pathology under the ægis of Liverpool University. The present chairman of Evans Sons Lescher and Webb was hon. secretary of the institute in its early days, and when in 1911, owing to lack of funds, the University was compelled to relinquish control, it was due to his efforts that the firm took it over and continued the work that was being done. The institute stands on the highest ground at Runcorn overlooking the Mersey and the Manchester Ship Canal; the laboratories are housed in a large new building of modern design. There is stabling for 200 horses; on the opening day there were actually in the stable 140 animals, and others were on the farm about a mile away. Lord Derby (who has seen horses before) made a careful inspection of the stables as indeed of the other equipment of the institute and expressed his high satisfaction. Visitors numbered 80, mostly medical practitioners. Demonstrations were given typical of the work carried on at the institute—e.g., withdrawal of blood for antitoxins from horses and stages in the preparation and standardisation of toxins and antitoxins. The methods employed in physiological standardisation and pregnancy diagnosis were also shown, and those interested in chemotherapy took advantage of the opportunity to see how *p*-aminobenzenesulphonamide is synthesised and to witness processes in the synthesis of the arsphenamines and associated compounds. All the laboratories, as well as the large refrigerating-room where vaccines are stored, and the houses where small animals are caged, were open to inspection.

Mr. T. E. Lescher, managing director of the firm, explained that the reason of the extension was that research work on strictly bacteriological lines, leading to increased production, made the old buildings inadequate. He suggested that in the past this country had been too dependent on imports for its supplies of antitoxins, vaccines, and chemotherapeutic products.

BRISTOL ROYAL INFIRMARY is celebrating its 200th anniversary next Friday, Oct. 22nd, when a dinner is being held at the University Union at 8 P.M.

Mr. Philip Guedalla will deliver the 15th Lloyd Roberts lecture at a reception which is being held by the president and officers of the Royal Society of Medicine on Oct. 29th. Sir John Parsons will receive his guests at 8.30 P.M., and at 9.15 Mr. Guedalla will speak on the method of biography.

Royal Buckinghamshire Hospital, Aylesbury

Lord Nuffield has given £6000 towards the cost of providing a new X ray department to further orthopædic work at this hospital.

Award for Gallantry

The King has awarded the Edward medal to Dr. R. B. Saunders of Rhodesia for his gallantry in remaining over 20 hours with a miner who had been trapped underground by a fall of rock. In order to attend his patient Dr. Saunders had to lie on top of him with his back in close proximity to a dangerously shaky roof, any disturbance of which would have resulted in a fall sufficient to crush them both.

Anti-Gas Training

The extent of the British Red Cross Society's training in first-aid in chemical warfare is shown by the statement that nearly 33,000 certificates have now been awarded, of which 5734 are for the advanced course of training. The society has 1864 fully qualified instructors available for teaching. It is announced that a course of instruction which 40 officers will attend, will be held at the Anti-gas Wing, Small Arms School, Winterbourne Gunner, from Nov. 8th to 13th.

Rheumatism Clinics

In connexion with the International Congress on Rheumatism and Hydrology, which is being held at Oxford from March 26th to 31st, 1938, it is hoped to hold an exhibition of plans for rheumatism clinics in which doctor and architects have collaborated. If money for the scheme can be raised a prize will also be offered. Further information may be had from Dr. J. van Breemen, Keizersgracht 489, Amsterdam.

Royal Academy of Medicine

Dr. A. R. Parsons was re-elected president of the Academy for 1937–38, with Dr. T. P. C. Kirkpatrick as general secretary and Dr. William Doolin as secretary for foreign correspondence. The general council consists of Dr. Gibbon FitzGibbon, Dr. E. T. Freeman, Dr. W. G. Harvey, Dr. W. R. O'Farrell, Dr. J. P. Shanley, and Mr. R. A. Stoney. The sectional presidents are: medicine, Dr. Freeman; surgery, Mr. A. A. McConnell; obstetrics, Dr. J. S. Quin; pathology, Dr. G. C. Dockeray; anatomy and physiology, Prof. J. Kay Jamieson; State medicine, Dr. C. J. McSweeney; and laryngology and otology, Mr. T. O. Graham.

Society for Relief of Widows and Orphans of Medical Men

At a quarterly court held on Oct. 6th the audited accounts for the half-year ended June 30th were presented. During this period a sum of £2195 was distributed among 60 widows and 9 orphans, special grants amounting to £52 10*s.* being made to enable two orphans to continue their medical studies. The death of a widow, who had been in receipt of grants for the past nine years, was reported. She had received from the society £630, in addition to £262 10*s.* for her son's medical education. He has now qualified. Owing to the increase of the numbers of widows in receipt of grants there is not sufficient balance available this year to make them a Christmas present, but each orphan will receive £5. Of the sixty widows on the books two are over ninety, five over eighty, and nine over seventy-five. The 150th anniversary of the foundation of the society will be celebrated next year. Membership is open to any registered medical man who at the time of his election is residing within a twenty-mile radius of Charing Cross. Particulars from the secretary at the offices of the society, 11, Chandos-street, London, W.1.

North Staffordshire Contributory Scheme

A joint contributory scheme, to be operated by a North Staffordshire Voluntary Hospitals contributory association for all the hospitals in Stoke-on-Trent, is to come into force on Jan. 1st.

Birmingham Hospitals Centre

On Sept. 30th the Lord Mayor of Birmingham launched an appeal for £54,000, the balance of the £1,000,000 required to complete the scheme for providing 500 beds at the Centre. Of the £946,000 already raised Lord Nuffield contributed £146,581 to cover the complete cost of the nurses' home and the college of nursing.

International League against Epilepsy

The second annual general meeting of the British branch of the League will meet on Friday, Oct. 22nd, at the rooms of the Medical Society of London (11, Chandos-street, W.) at 10 A.M., with Dr. Wilfred Harris, the president, in the chair. The following subjects will be discussed: the utility of medicinal treatment, the use and abuse of bromides, the employment of snake-venom, the value of Prominal, the social care of the epileptic, the electro-encephalogram in epileptics, and speakers will include Dr. F. R. Ferguson, Dr. Denis Brinton, Dr. R. H. Crowley, Dr. Burgess Barnett, Mr. Grey Walter, Dr. L. G. Millar Page, and Dr. T. A. Munro. Medical practitioners who are not members of the League but who would like to attend the meeting are asked to communicate with the hon. secretary, Dr. Macdonald Critchley, 137, Harley-street, London, W.1.

Post-graduate Lectures in Edinburgh

Eight post-graduate lectures, open to all medical men without payment of a fee, will be delivered in Edinburgh this autumn, under a grant received from the Honyman-Gillespie trust. These lectures will be delivered in the West Medical Theatre of the Royal Infirmary on Thursdays at 5 o'clock. The subject matter of the lectures has been coördinated with the eight weeks' course on internal medicine described in our issue of Sept. 18th (p. 717). The following are the names of the lecturers and the titles of their lectures: Prof. W. T. Ritchie, disordered circulation of the interstitial fluid (Oct. 21st); Dr. Edwin Bramwell, the pupil reactions (Oct. 28th); Prof. D. K. Henderson, suicide (Nov. 4th); Dr. Fergus Hewat, the lungs and pleura (Nov. 11th); Dr. J. D. Comrie, diet and dyspepsia (Nov. 18th); Prof. D. M. Lyon, the importance of urinary reactions in disease and treatment (Nov. 25th); Dr. John Eason, toxic goitre (Dec. 2nd); and Dr. Alexander Goodall, the management of pernicious anæmia (Dec. 9th).

New Baths at Harrogate

On Oct. 6th Sir Kingsley Wood, the Minister of Health, laid the foundation stone of the new Royal Baths at Harrogate. The mayor (Mr. H. Bolland) in welcoming the Minister intimated that Sir Kingsley and Lady Wood were frequent visitors to Harrogate for the "cure." He reminded his audience that the first step in the spa development scheme had been taken four years ago when the new sun colonnade in the Valley Gardens was opened by Lord Horder. The new baths were a further instalment. After the stone had been laid by Sir Kingsley Wood and dedicated by the Bishop of Ripon, Dr. Sinclair Miller, as president of the Harrogate Medical Society, conveyed to them the thanks of the town for the services they had rendered, and coupled the name of Lord Horder with the resolution. Sir Kingsley, in responding, expressed his admiration of Harrogate and the great benefit he had derived from its waters on many occasions. He referred to the enormous industrial waste and invalidity caused by chronic rheumatic affections and to the valuable research work being done in the rheumatic research department of the Harrogate Royal Bath Hospital in conjunction with the Leeds University. Lord Horder, likewise responding, said he was pleased to be present at the ceremony because it gave him an opportunity of showing his belief in Harrogate and its waters. He regretted that the spa was not better known both at home and abroad.

Medical Diary

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
TUESDAY, Oct. 19th.—5.30 P.M., General Meeting of Fellows.
Pathology. 8.30 P.M. J. H. Eagles, P. R. Evans, J. D. Keith, A. G. Timbrell-Fisher: Infection Experiments with Virus-like Bodies from Rheumatism. W. G. Barnard: Closure of Ductus Arteriosus. A. M. Barrett: A Special Form of Red Corpuscle Associated with Increased Resistance to Hypotonic Saline. Emmy Klieneberger: Symbiotic Bacteria: particularly in connexion with Pulmonary Diseases in Animals.
THURSDAY.
Dermatology. 5 P.M. (Cases at 4 P.M.) Dr. G. W. Bamber: 1. Linear Dermatosis. Dr. J. H. T. Davies: 2. ? Ehlers Danlos Syndrome (Forme Fruste). Dr. W. N. Goldsmith: 3. Parapsoriasis Retiformis. Dr. F. A. E. Silcock: 4. Acne Conglobata. Dr. J. E. M. Wigley: 5. Lymphangioma Circumscriptum. 6. Hodgkin's Disease with Erythrodermia. 7. Dermatitis Herpetiformis. Dr. Louis Forman: 8. Case for Diagnosis. ? Mycosis Fungoides. 9. ? Lupus. Dr. F. Parkes Weber: 10. Scarring from Exposure to the Sun.
Neurology. 8.30 P.M. Dr. Anthony Feiling: Central Pain in some Spinal Cord Lesions. (Presidential address.)
FRIDAY.
Disease in Children. 5 P.M. (Cases at 4.30 P.M.) Dr. J. D. Rolleston and Mr. Philip Turner: Multiple Pyæmic Abscesses in Scarlet Fever: Recovery.
Epidemiology and State Medicine. 8.15 P.M. Sir Arthur MacNalty: The Epidemiology of Encephalitis Lethargica. (Presidential address.)

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, Manson House, 26, Portland-place, W.
THURSDAY, Oct. 21st.—7.45 P.M., demonstration of microscopic preparations of the endothelial development of various avian plasmodia. 8.15 P.M., Colonel S. P. James, F.R.S.: Advances in Knowledge of Malaria since the War. (Presidential address.)

HUNTERIAN SOCIETY.
MONDAY, Oct. 18th.—8.30 P.M. (Simpson's Restaurant, Bird-in-Hand-court, 76, Cheapside), Dr. D. C. Norris: Some Medical Problems in Accident Insurance. (Presidential address.)

SOUTH-WEST LONDON MEDICAL SOCIETY.
WEDNESDAY, Oct. 20th.—9 P.M. (Bolingbroke Hospital, Wandsworth Common), Dr. F. G. Chandler: Problems in Prognosis and Diagnosis in Diseases of the Chest.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.
MONDAY, Oct. 18th.—4 P.M., Sir Arthur Hurst: Observation and Experiment and the Physiology of the Stomach. (Harveian oration.)

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn-fields, W.C.
MONDAY, Oct. 18th.—5 P.M., Dr. L. W. Proger: Demonstration of Pathological Specimens in the Museum.
FRIDAY.—5 P.M., Dr. A. J. E. Cave: The Anatomy of the Pelvic Floor.

UNIVERSITY OF BRISTOL.
TUESDAY, Oct. 19th.—8.30 P.M. (Wills Physics Building), Prof. V. B. Green-Armytage: The Debt of Western Medicine to the East. (Long Fox lecture.)

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane-road, W.
TUESDAY, Oct. 19th.—4.30 P.M., Sir Arthur Hall: Meningitis and Encephalitis.
WEDNESDAY.—Noon, clinical and pathological conference (medical). 2 P.M., Prof. J. H. Dible: Pathology of some Bone Diseases. 3 P.M., clinical and pathological conference (surgical). 4.30 P.M., Mr. A. Bradford Hill, D.Sc.: The Planning and Interpretation of Experiments in Medicine.
THURSDAY.—2.15 P.M., Dr. Duncan White: Radiological Demonstration. 3.30 P.M., Dr. R. E. Roberts: Radiology in Obstetrics.
FRIDAY.—2.30 P.M., Mr. Reginald Vick: Intestinal Obstruction. 2 P.M., clinical and pathological conference (obstetrics and gynæcology).
Daily, 10 A.M. to 4 P.M., medical clinics, surgical clinics and operations, obstetrical and gynæcological clinics and operations. Refresher course for panel practitioners.

LONDON HOSPITAL, E.
WEDNESDAY, Oct. 20th.—10 A.M., Mr. W. R. Keizer: Post-extraction Hæmorrhage and its Treatment. 11 A.M., Dr. M. H. Jupe: Radiological Appearances in Metabolic and General Disease of Bone. Noon, Mr. H. S. Souttar: The Surgical Applications of Radium. 1 P.M., Dr. A. Burrows: Cosmetics. 2 P.M., Dr. O. Leyton: Slow-acting Insulins. 3 P.M., Major M. F. Blackmore and Colonel W. Garforth: Some Principles of Protection in Air Raids. 4.30 P.M., Dr. R. Christie: The Indications for Oxygen Therapy.
THURSDAY.—10 A.M., Mr. C. Keogh: Acute Sinusitis and Acute Otitis Media. 11 A.M., Dr. W. J. O'Donovan: Prurigo (with film by Mr. E. A. Pask). Noon, Dr. A. Maitland-Jones: Some Remarks on the Feeding of Infants. 1 P.M., Dr. William Evans: Some Observations on the Treatment of Certain Cardiovascular Disorders. 2 P.M., Mr. W. Morris: The Surgical Treatment of Bell's Paralysis. 3 P.M., Prof. H. Cairns: Intracranial Surgery. 4.30 P.M., Prof. Arthur Ellis: Malignant Hypertension. (Schorstein lecture.)
FRIDAY.—10 A.M., Mr. C. B. Goulden: The Diagnosis of the Injected Eye. 11 A.M., Mr. R. Milne: Painful Wrist. Noon, Mr. Tudor Edwards: Thoracic Surgery from the Point of View of the General Practitioner. 1 P.M., Mr. Eardley Holland: Modern Methods of Prophylaxis and Treatment in Hæmolytic Streptococcal Puerperal Infections. 2 P.M., Dr. C. Wall: The Invasion Period of Pulmonary Tuberculosis. 3 P.M., Mr. C. Donald: Swellings and Sinuses in the Neck (illustrated). 4.30 P.M., Col. Wand-Tetley: Recruit Training. 8.30 P.M., Demonstration in Methods of Anæsthesia.
SATURDAY.—10 A.M., Mr. A. M. A. Moore. Motoring Accidents. 11 A.M., Mr. E. C. B. Butler: General Surgical Infections and Experience in the Use of Prontosil. Noon, Sir James Walton: Peptic Ulceration. Open only to former students of the hospital.

WEST LONDON HOSPITAL POSTGRADUATE COLLEGE, Hammersmith, W.
TUESDAY, Oct. 19th.—10 A.M., medical wards. 11 A.M., surgical wards. 2 P.M., operations, medical, surgical, and throat clinics. 4.15 P.M., Dr. Konstam: Congenital Heart Disease.
WEDNESDAY.—10 A.M., children's ward and clinic. 11 A.M., medical wards. 2 P.M., gynæcological operations, medical, surgical, and eye clinics.
THURSDAY.—10 A.M., neurological and gynæcological clinics. Noon, fracture clinic. 2 P.M., operations, medical, surgical, genito-urinary, and eye clinics.
FRIDAY.—10 A.M., medical wards, skin clinic. Noon, lecture on treatment. 2 P.M., operations, medical, surgical, and throat clinics. 4.15 P.M., Mr. Vlasto: Dysphagia.
SATURDAY.—10 A.M., children's and surgical clinics. 11 A.M., medical wards.
The lectures at 4.15 P.M. are open to all medical practitioners without fee.

LONDON SCHOOL OF DERMATOLOGY, 5, Lisle-street, W.C.
TUESDAY, Oct. 19th.—5 P.M., Dr. H. W. Barber: Psoriasis.
WEDNESDAY.—5 P.M., Dr. I. Muende: Histopathology of Common Skin Diseases.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, Oct. 18th, to SUNDAY, Oct. 24th.—ST. JOHN'S HOSPITAL, 5, Lisle-street, W.C., afternoon course in dermatology (open to non-members).—CHELSEA HOSPITAL FOR WOMEN, Arthur-street, S.W., all-day course in gynæcology.—CITY OF LONDON MATERNITY HOSPITAL, City-road, E.C. Sat. and Sun., course in obstetrics.—Unless otherwise stated, courses are open only to members.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.
MONDAY, Oct. 18th, to SATURDAY.—First Week of a Clinical Course for Part II of the D.L.O. Examination.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
THURSDAY, Oct. 21st.—2 P.M., Dr. B. E. Schlesinger: Abdominal Tuberculosis in Children. 3 P.M., Mr. J. H. Doggart: Causes of Corneal Ulcers in Children.
Out-patient clinics daily at 10 A.M. and ward visits at 2 P.M.

ST. JOHN CLINIC AND INSTITUTE OF PHYSICAL MEDICINE, 42, Ranelagh-road, S.W.
FRIDAY, Oct. 22nd.—4.30 P.M., Sir Humphry Rolleston: History of Physical Medicine.

NATIONAL HOSPITAL, Queen-square, W.C.
MONDAY, Oct. 18th.—3.30 P.M., Mr. Williamson-Noble: Optic Atrophy.
TUESDAY.—3.30 P.M., Dr. Elkington: Motor Symptoms.
WEDNESDAY.—3.30 P.M., Dr. Walshe: Clinical Demonstration.
THURSDAY.—3.30 P.M., Dr. Riddoch: Sensory Symptoms and their Interpretations.
FRIDAY.—3.30 P.M., Dr. Bernard Hart: Psychopathology and the Psychoneuroses.

TAVISTOCK CLINIC, Malet-place, W.C.
THURSDAY, Oct. 21st.—8.30 P.M., Sir Walter Langdon-Brown: Functional Disorders of Digestion.

ANCOATS HOSPITAL, Manchester.
THURSDAY, Oct. 21st.—4.15 P.M., Dr. Reid: Organic Background of Mental Cases.

MANCHESTER ROYAL INFIRMARY.
FRIDAY, Oct. 22nd.—4.15 P.M., Dr. A. Hillyard Holmes: Medical Cases.

LEEDS PUBLIC DISPENSARY AND HOSPITAL, North-street.
WEDNESDAY, Oct. 20th.—4 P.M., Dr. W. Goldie: The Differential Diagnosis of the Rheumatic Diseases.

LEEDS GENERAL INFIRMARY.
TUESDAY, Oct. 19th.—3.30 P.M., Mr. Moir: Demonstration of Surgical Cases.

LIVERPOOL PSYCHIATRIC CLINIC, 1, Abercromby-square.
WEDNESDAY, Oct. 20th.—4.15 P.M., Dr. S. Barton Hall: Psychoneurosis and Functional Nervous Disorder.

UNIVERSITY OF SHEFFIELD.
SUNDAY, Oct. 17th, and FRIDAY.—Post-graduate Clinics at the Royal Hospital, Royal Infirmary, and Jessop Hospital.

EDINBURGH ROYAL INFIRMARY.
THURSDAY, Oct. 21st.—5 P.M., Prof. W. T. Ritchie: Disordered Circulation of the Interstitial Fluid. (Honyman-Gillespie lecture.)

NOTES, COMMENTS, AND ABSTRACTS

POLLUTED WATERS AND MICROSCOPIC ALGÆ

THE rôle of chlorophyll and its congeners is truly remarkable: given water, sunshine, and carbon dioxide, with the small proportions of suitable salts which the water can wash out of the soil, and a source of nitrogen, the green plant will furnish a forest, a salad, or, indirectly, a leg of mutton. Aspects of the fundamental action of photosynthesis

$$nCO_2 + nH_2O \rightarrow (CH_2O)n + nO_2$$

which receive less recognition than the production of a carbohydrate are the exchange of oxygen for carbon dioxide in the gas phase. This prevents undue increase of carbon dioxide in the air and replaces oxygen used up in combustion or respiration.

It has long been known that aquatic green vegetation is maintained by similar process and that the liberation of oxygen as a by-product of photosynthesis would enable fish to live for long periods. In his "Popular History of the Aquarium," published in 1857, G. B. Sowerby refers to having seen, a few days before writing, the tank in which Robert Warrington, later better known as the associate of Lawes and Gilbert in the classical Rothamsted experiments, had kept two goldfish and a plant of valisnera from 1850 without changing the water. Much later, in 1917, J. H. Coste referred to having kept a small aquarium under observation during the preceding summer, noting that the dissolved oxygen content always increased from morning to evening and was often well above saturation; he also stated that he had found natural waters to contain as much as 180 per cent. of the saturation figure of oxygen. Many other such observations have been made.

For some years the United States Public Health Service has conducted stream-pollution investigations and a report by W. C. Purdy on the reoxygenation of polluted waters by microscopic algæ (*Publ. Hlth Rep., Wash.* 1937, **52**, 945) is devoted to a description of in-vitro experiments with a standard imitation sewage-distilled water, buffered at *p*H 7·2 with phosphate salts in concentration of 2·5 g. per litre; dextrose-peptone-phosphate broth, per litre 2 c.cm. (=10 mg. of dextrose and of peptone per litre) and one single alga-*Oocystis lacustris* and pure cultures of *Bacterium aerogenes*. All experiments except one series were made in stoppered bottles filled with the "sewage" and inoculated in the first three series with bacteria only and with bacteria and algæ; in the fourth and fifth a third bottle inoculated with algæ only was included. The bottles of the fifth series were open to the air through effective plugs of cotton-wool and were by an ingenious device all subjected to the same aerating and mixing action. Each experiment lasted 10–17 days and a set of bottles representing each mixture used was opened and the dissolved oxygen determined daily with few exceptions. The numbers of bacteria and the volume (by Sedgwick-Rafter counting cell) of algæ was also determined on each occasion.

Experiments of this kind, although conducted with the greatest care (as these seem to have been) are in the nature of things unlikely to yield results as precise as when true solutions or ultramicroscopic suspensions are used, and the results obtained with successive bottles do not show a smooth sequence—it would be rather suspicious if they did. Nevertheless, Purdy's data showed that in the medium resembling heavily polluted water the dissolved oxygen was considerably decreased wherever bacteria were present, but in the presence of algæ the decrease was retarded as they, usually after about three days, began to increase in number. The oxygen produced by photosynthesis always prevented complete depletion and sometimes supersaturation with oxygen occurred. The bacteria increased from initial counts of the order of thousands per cubic centimetre to 5–13 million per c.cm., the bacterial number being but little affected by the presence of algæ. When sterile air was allowed access much supersaturation was not observed. This is as would be expected, since the tendency is to bring the liquid into equilibrium with air either by taking up or by giving up oxygen until saturation and no more is reached.

Experiments made in darkness showed that the dissolved oxygen decreased without any recovery even in the presence of algæ, since the excess oxygen found in other cases is really the by-product of photosynthesis.

What happened in Purdy's glass bottles happens on a large scale in all natural bodies of water freely exposed to daylight. The bacterial and algal populations are more complex and are supplemented by a protozoon, and possibly higher fauna, but it is the reoxygenation of polluted waters by photosynthesis effected by algæ and higher vegetation that keeps them in a condition to support their oxygen-breathing population, especially in summer weather when the warmed water has a lower saturation figure and the diminution of dissolved oxygen is imminent, owing to the increased demands for it made by cold-blooded animals as the temperature rises. The bright green appearance of many rivers and ponds in summer, so far from being evidence of an offensive condition, is caused by the very organisms likely to prevent foulness.

In the introductory part of his paper Purdy gives a good general discussion of the part played by aquatic plants in nature, based on his own and other almost exclusively American work.

CONTRACEPTIVE JELLIES

IN the *American Journal of Medical Science* for July C. J. Gamble and G. W. Beebe describe some attempts to assess the effectiveness of various jellies used as the sole means of contraception. The most complete figures come from a series of patients seen at the Episcopal Hospital, Philadelphia; but the numbers are too small to be significant. Patients on being discharged after a confinement were offered a tube of jelly and an applicator, costing in all 30 cents. The jelly contained 2 per cent. lactic acid, with 0·025 per cent. oxyquinoline sulphate in a vegetable gum base and had a *p*H of 2·9. At the end of two years a follow-up was made of patients who had had the jelly for six months or more. Of 130 women only 83 could be traced, and of these only 19 (23 per cent.) had used the jelly regularly and by itself. The pregnancy rates of these women were calculated, by a method adapted from Pearl and from Stix and Notestein, both for the potential childbearing period before the use of the jelly and for the period during which the jelly was being used. The first calculation provides some sort of a control in estimating the value of the contraceptive under review. It was found that the average pregnancy rate for all the 83 women for the first period was 69, and for the 19 women using the jelly regularly the rate for the second period was 4. This suggests that the jelly afforded a reasonable, but nothing like a complete, protection against conception.

Publications describing the results obtained with chemical contraceptives are conspicuous by their absence. Almost the only other paper dealing with a clinical investigation of this sort is one by Dr. Hannah Stone (*J. Contraception*, 1936, **1**, 209) in which she describes a follow-up of some 230 cases in which various jellies had been advised as the sole means of contraception. Her paper brings out two striking points: (1) that CO_2 foaming jellies are less efficient than simple jellies; and (2) that the proportion of women failing to persist in the use of the jelly is surprisingly large (50 per cent. for foam jellies and 34 per cent. for simple jellies). Unfortunately her

figures cannot be easily compared with those given by Gamble and Beebe, for she merely indicates the percentage of successful and unsuccessful cases and does not give pregnancy rates.

It would be a great advantage if workers in this field could come to some agreement about the best methods of recording and calculating results. Pearl's method of computing the pregnancy rate per 100 ovulations or per 100 person-years of exposure to risk of pregnancy appears to provide the most accurate means of comparing the efficiency of various methods of birth control in different series of cases. It is obviously desirable that clinical investigations into the efficiency of contraceptive methods should be made, but until some uniformity is arrived at in the recording of results much useful work will be wasted.

From the paper under review the following facts emerge: (1) contraceptive jellies afford a fair protection against pregnancy, but not so good as that given by a combined method (i.e., condom plus chemical or cap plus chemical); (2) the percentage of non-use cases (i.e., women failing to use the method for one reason or another) is remarkably high—higher than one would expect for a combination method; and (3), perhaps most surprising of all, the actual spermicidal efficiency (according to laboratory tests) of the product in use does not seem to have interested the investigators (though Dr. Stone, at any rate, does emphasise the importance of the vehicle). It is a pity that not one of the preparations mentioned contains a really efficient spermicide and that therefore the results of this investigation are not of great value to clinical workers, excepting in so far as they will provide a control for subsequent clinical investigations of chemical contraceptives with a high spermicidal value.

NEW PREPARATIONS

In "PLASTULES" BRAND HÆMATINIC COMPOUND John Wyeth and Brother Ltd., 25, Oldhill-place, London, N.16, have produced a flexible gelatin capsule containing 5 grains ferrous sulphate and ¾ grain concentrated yeast extract in a semi-fluid mass. The yeast concentrate is included as a convenient source of vitamins B_1 and B_2. It is stated that the sealed capsule prevents oxidation of the iron from the ferrous to the ferric state and avoids any risk of the contents becoming hard and non-assimilable. Other advantages claimed are ease of administration and rapidity of disintegration in the stomach. The manufacturers also offer "Plastules" brand Hæmatinic Compound with Liver Extract, of which each capsule contains 2·5 grains ferrous sulphate, ¾ grain concentrated yeast extract, and 2·62 grains liver extract (equivalent to about 160 grains of fresh liver).

CALCIPOT is described as an easily assimilable form of calcium organically combined with phosphorus. The formula is given as: calcium citrate, 0·28; calcium glyc. phosph., 0·02; cocoa, 0·25; saccharose, 0·45. It is taken by mouth and recommended for the treatment of calcium deficiency, nervous hyperexcitability, inflammatory processes, and bronchial spasm. Calcipot "D" includes, in addition, vitamins B_1, B_2, and D. Calcipot Ampoules contain a sterile solution of calcium gluconate (10 per cent. or 20 per cent.) for intramuscular and intravenous injection. The 5 c.cm. or 10 c.cm. glass containers, known as majoles, are easily opened and do not splinter. The makers are Troponwerke (Cologne-Mülheim) and the British agents Harker, Stagg and Morgan Ltd., Emmott-street, E.1.

ALLENBURYS SULPHONAMIDE P is a preparation of *p*-aminobenzenesulphonamide (sulphanilamide) made by Allen and Hanburys Ltd., Bethnal Green, E.2. The makers suggest its oral use in "puerperal and other streptococcal septicæmias, erysipelas, scarlet fever, tonsillitis, impetigo, otitis media, meningococcal and hæmolytic streptococcal meningitis, and pneumonia."

"WELLCOME" BRAND SULPHONAMIDE-P.—Besides their "Tabloid" Sulphonamide-P (sulphanilamide), which is given by mouth, Messrs. Burroughs Wellcome and Co. (Snow Hill Buildings, E.C.1) now issue "Wellcome" Brand Sulphonamide-P, intended for both parenteral and oral administration. They point out that recent investigations have broadened the indications for giving sulphanilamide. "There is now justification for its trial in cases of meningococcal meningitis, and *B. coli*, *B. aerogenes*, and *B. proteus* infections of the genito-urinary tract. Laboratory experiments also indicate that the drug may be of use in typhoid and paratyphoid fevers, and in staphylococcal septicæmia or infections; clinical experience for this group of infections is at present small."

A booklet on the Chemotherapy of Streptococcal Infections has been prepared by PHARMACEUTICAL SPECIALITIES (May and Baker) Ltd. of Dagenham. It describes the properties and use of Proseptasine, the benzyl derivative of sulphanilamide, and Soluseptasine, a more complex sulphonamide readily soluble in water, colourless, and suitable for injection. Summarising experience gained in the past 18 months they refer inter alia to the experimental evidence of the value of their preparations provided by L. E. H. Whitby (*Lancet*, 1937, **1**, 1517).

ACARDIUS ACORMUS

THIS name is given to a fœtus consisting only of a head. A case approximating to the definition is reported by J. H. Brenninkmeijer (*Ned. Tijschr. Geneesk.* 1937, **81**, 4256).

He was summoned to a woman in labour whom he had not previously seen. The duration of the pregnancy was impossible to ascertain exactly, since her last child had been born 9½ months before and she had not menstruated since; but the size of the uterus appeared too great for the estimated duration. Rupture of the membranes was followed by the escape of a very large quantity of amniotic fluid and shortly afterwards by the birth of a normal male child weighing 4 lb. and having the appearance of an eight months' fœtus. Five minutes later pains recommenced and, instead of the expected placenta, a second head presented at the vulva. It was removed by traction and was immediately followed by the placenta, to which it was attached by an umbilical cord branching from that of the normal twin.

The monster consisted apparently of a head only, but on closer examination a swelling was found beneath the chin, about the size of a plum, in which pulsation could be felt. This pulsation continued for 1½ hours after birth and could be felt also in an encephalocele which was present; an X ray examination disclosed a short length of vertebral column and several ribs. The head was of normal appearance, apart from the encephalocele, but the cranial skeleton was very defective, as the radiogram showed.

Brenninkmeijer has collected eight other instances on record. His own is the only one he has been able to discover in which the monster was born alive. He hopes to make a further report later upon the rudimentary heart presumably present.

UNQUALIFIED PRACTICE IN GERMANY.—At a special meeting of the Executive Body of National Health held in Nuremberg on Sept. 10th, the leader of the German medical profession stated, according to the *Medizinische Klinik* of Oct. 1st, that in future at the desire of the Führer the so-called liberty of medical practice (Kurierfreiheit), that is to say the uncontrolled activity of imperfectly educated half-doctors and quacks, was suspended.

PLYMOUTH CITY HOSPITAL.—Plymouth city council on Oct. 4th approved a scheme to reconstruct this hospital at a cost of £250,000. The council also decided to help the Prince of Wales's Hospital financially.

Appointments

FEGGETTER, S. Y., M.S. Durh., F.R.C.S. Eng., Surgical Registrar at the Newcastle-upon-Tyne General Hospital.

NOLAN, MARGARET M., M.A.O., M.Ch. N.U.I., F.R.C.S. Irel., D.P.H., D.T.M. & H., M.C.O.G., Deputy Medical Officer of Health and School Medical Officer for Rowley Regis.

New Sussex Hospital for Women and Children, Brighton.—The following appointments are announced:—

GRIFFITH, Mrs. E. M., M.R.C.S. Eng., Hon. Surgeon;

OTTLEY, Miss C. M., B.M. Oxon., F.R.C.S. Eng., Hon. Surgeon; and

ROCKSTRO, ENID H., M.B. Lond., F.R.C.S. Eng., Hon. Surgeon.

Medical Referees under the Workmen's Compensation Act, 1925: Dr. E. J. BRADLEY, of Margate, for the Margate and Ramsgate County Court Districts (Circuit No. 49); R. M. WALKER, M.S., F.R.C.S., of Wolverhampton, for the Wolverhampton County Court District (Circuit No. 25).

Vacancies

For further information refer to the advertisement columns

Barnsley, Beckett Hosp. and Dispensary.—Jun. H.S., £200.

Beckenham, Bethlem Hosp., Monk's Orchard.—Res. H.P., at rate of £150.

Berks and Bucks Joint Sanatorium, Peppard Common.—Med. Supt., £800.

Birmingham City.—Res. Asst. M.O., £450.

Birmingham and Midland Eye Hosp.—Res. Surg. O., £200.

Birmingham, Selly Oak Hosp.—Jun. M.O.'s, each at rate of £200.

Blackburn, Queen's Park Hosp. and Institution.—Res. Jun. Asst. M.O., at rate of £150.

Boston General Hosp.—Res. M.O., at rate of £150.

British Postgraduate Medical School, Ducane-road, W.—Sub-Dean, £1250.

British Red Cross Society, Clinic for Rheumatism.—Hon. Gynæcologist.

Buxton, Devonshire Royal Hosp.—Hon. Asst. Physician, Tuberculosis Section.

Cardiff, Welsh National School of Medicine.—Asst. Lecturer in Dept. of Pathology and Bacteriology, £500. Also Asst. Lecturer in Dept. of Materia Medica and Pharmacology, £500.

Chadderton Urban District Council.—M.O.H., School M.O., and Child Welfare Officer, £800.

Charing Cross Hosp., W.C.—Med. Reg., £150.

Chesterfield and North Derbyshire Royal Hosp.—H.S. to Ophth., and Ear, Nose, and Throat Dept., at rate of £150.

Colchester, Royal Eastern Counties Institution, &c.—Med. Supt. for Branch at Bridge Home, £700.

Denbigh, North Wales Counties Mental Hosp.—Jun. M.O., £350.

Doncaster Royal Infirmary and Dispensary.—H.S., to Eye and Ear, Nose, and Throat Depts., £175.

Dorchester, Dorset Mental Hosp.—Jun. Asst. M.O., £400.

Dreadnought Hosp., Greenwich, S.E.—Receiving Room Officer, at rate of £200.

Dudley, Guest Hosp.—Res. Surg. O., at rate of £250–£300.

East Ham Memorial Hosp., Shrewsbury-road, E.—Physician for Skin Dept.

Halifax Royal Infirmary.—Second and third H.S.'s, at rate of £175 and £150 respectively.

Hastings, Royal East Sussex Hosp.—Jun. H.S., at rate of £150.

His Majesty's Colonial Service.—10 M.O.'s, £600–£700.

Hosp. for Consumption and Diseases of the Heart, Brompton, S.W.—Asst. for Dept. of Pathology, £350.

Hosp. for Sick Children, Great Ormond-street, W.C.—Surg. Reg., at rate of £200.

Huddersfield Royal Infirmary.—H.S., at rate of £150. Also H.S. to Eye, Ear, Nose, &c. Dept., at rate of £150.

Hull Royal Infirmary.—H.P., at rate of £160. Also Second H.S. and First Cas. O., each at rate of £150.

Ipswich Sanatorium,—Asst. M.O., £350.

Kent County.—Two Asst. Tuber. Officers, each £600.

Lancashire County Council.—Jun. Asst. M.O. for Wrightington Hosp., at rate of £200.

Lancashire Mental Hosps. Board.—Med. Supt., £950. Also two Deputy Supts., each £750.

Liverpool, David Lewis Northern Hosp.—Med. Reg. and Tutor.

Liverpool, Mill-road Infirmary.—Sen. Res. Asst. M.O. (Surgical), £350.

London County Council.—Part-time M.O. for Maudsley Hosp., £300. Also Part-time M.O. for Lodge Residential School, £40.

London Lock Hosp., 283, Harrow-road, W.—Surg. Reg. for Female Lock Hosp., £100.

Manchester, Monsall Hosp. for Infectious Diseases.—Second Res. Asst. M.O., £350.

Manchester Royal Eye Hosp.—Jun. H.S., £120.

Middlesex County Council.—Physician for West Middlesex County Hosp., £650.

Mount Vernon Hosp., Northwood.—Res. H.S.

National Temperance Hosp., Hampstead-road, N.W.—H.P., at rate of £100.

Newport, Royal Gwent Hosp.—H.P., at rate of £150. Also three H.S.'s and H.S. to Fracture and Orthopædic Dept., at rate of £135.

Norwich, Norfolk and Norwich Hosp.—Hon. Physician.

Oldham Royal Infirmary.—H.S. at rate of £175.

Oswestry, Robert Jones and Agnes Hunt Orthopædic Hosp.—Res. Surg. O., £350. Also H.S., at rate of £200.

Perth, James Murray's Royal Mental Hosp.—Sen. Asst. Physician, £350.

Royal Air Force Medical Service.—Commissions.

Royal Chest Hosp., City-road, E.C.—H.P., at rate of £100.

Royal Eye Hosp., St. George's-circus, S.E.—Research Scholarship, £100.

Royal Naval Medical Service.—Medical Officers.

Royal Waterloo Hosp. for Children and Women, Waterloo-road, S.E.—H.P., at rate of £100.

Samaritan Free Hosp. for Women, Marylebone-road, N.W.—Registrar, £130. Also H.S., at rate of £100.

Sheffield Royal Infirmary.—Ophth. H.S., at rate of £120. Also H.P. and two H.S.'s to Spec. Depts., each at rate of £80.

Sheffield University.—Research Asst. for Dept. of Pathology, £400.

Southall Borough.—M.O.H., £800.

South London Hosp. for Women, Clapham Common, S.W.—Surg. Reg., £75.

South Shields General Hosp.—Deputy Med. Supt., £350.

St. Mary's Hosp., W.—Cas. H.S., at rate of £100.

Stockport, Stepping Hill Hosp.—Cons. Physician, at rate of £200.

Truro Royal Cornwall Infirmary.—Hon. Radiologist.

West London Hosp., Hammersmith-road, W.—Res. Asst. Surg. and Chief Asst. to Dept. for Treatment of Injuries, each at rate of £200.

Westminster Hosp., Broad Sanctuary, S.W.—Asst. Ophth. Surgeon.

Winchester, Royal Hampshire County Hosp.—H.P., at rate of £125.

Woolwich and District War Memorial Hosp., Shooters Hill, S.E.—H.S., at rate of £100.

Rhondda Urban District Council.—The final date on which applications for the post of Woman Assistant Medical Officer will be received is Tuesday, Oct. 19th, and not as stated in the advertisement in our last issue (p. 63).

The Chief Inspector of Factories announces vacancies for Certifying Factory Surgeons at Studley (Warwick), Keswick (Cumberland), Ledbury (Hereford), Modbury (Devon), Skipton (York, W.R.), Gravesend (Kent), and Kirton-in-Lindsey (Lincoln).

Births, Marriages, and Deaths

BIRTHS

AITKEN.—On Oct. 8th, at Bentinck-street, W., the wife of Dr. R. S. Aitken—a son.

ALLAN.—On Oct. 4th, at Middlesex Hospital, the wife of Dr. H. Allan—a son.

HALLAM.—On Oct. 2nd, at Welbeck-street, W., the wife of Dr. H. N. Hallam of Reigate—a son.

HESTER.—On Oct. 6th, the wife of Kenneth Hester, F.R.C.S., of Harpenden, Herts—a daughter.

MCLEAN.—On Oct. 5th, at the English Mission Hospital, Jerusalem, the wife of Dr. W. W. McLean—a son.

MILLER.—On Oct. 10th, at Wilbraham-place, S.W., the wife of Dr. N. A. Miller of Slough—a son.

OWEN.—On Oct. 5th, at St. Bartholomew's Hospital, the wife of Dr. W. A. Owen—a daughter.

PATTERSON.—On Oct. 5th, at Droitwich, the wife of Dr. J. W. T. Patterson—a daughter.

PLUNKETT.—On Oct. 8th, at Moascar, Egypt, the wife of Captain O. R. L. L. Plunkett, R.A.M.C.—a daughter.

POSFORD.—On Oct. 7th, at St. Thomas's Hospital, London, the wife of Dr. Peter Posford of Broadstone, Dorset—a son.

VANDER PANT.—On Oct. 3rd, the wife of F. N. Vander Pant, L.D.S., of Devonshire-place, W.—a daughter.

MARRIAGES

KEMPTON—BRINDLEY.—On Oct. 4th, at St. Francis Church, South Ascot, John J. Kempton, M.B., to Bride Dorinda, elder daughter of Mr. and Mrs. L. Kirwan Brindley, of Sussex Lodge, Bracknell, Berks.

SMITH—RADLEY.—On Oct. 2nd, at St. Mary's, Addington, Eric John Smith, M.B., M.S., F.R.C.S., to Eileen, youngest daughter of Mr. and Mrs. W. A. Radley, of Blackheath Park, Blackheath.

DEATHS

BENTLEY.—On Oct. 5th, at Royton, Lancashire, William Leonard Bentley, L.S.A., T.D., Lt.-Col., R.A.M.C., T.F., (retd.).

BERESFORD.—On Oct. 7th, Charles William Beresford, M.R.C.S. Eng., of Hove, aged 83.

EARLS.—On Oct. 6th, at Beemead-avenue, Streatham, James Henry Earls, M.D., M.Ch. R.U.I., D.P.H., Barrister-at-Law.

HOOD.—On Sept. 20th, at Ivybank, Blairgowrie, Thomas A. F. Hood, M.B., C.M.

LOGAN.—On Oct. 9th, at Spaxton, Somerset, Roderic Robert Walter Logan, M.R.C.S. Eng., J.P., formerly of Ashby-de-la-Zouch.

ROSS.—On Oct. 9th, at Hove, Douglas McKissock Ross, M.D. Edin., in his 85th year.

SWIFT.—On Sept. 30th, at Adelaide, South Australia, Harry Swift, M.D. Camb., F.R.C.S. Eng., aged 79 years.

VIZARD.—On Oct. 5th, Surg. Capt. Arthur Harry Hingston Vizard, M.D. Edin., R.N. (retd.).

WATSON.—On Oct. 9th, at Worthing, William A. Watson, M.B. Aberd., aged 57.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

ADDRESSES AND ORIGINAL ARTICLES

THE TIME HAS COME . . . *

BY SIR ARTHUR HURST, D.M. Oxon., F.R.C.P. Lond.
SENIOR PHYSICIAN TO GUY'S HOSPITAL

THE task of the two hundred and eighty-first Harveian orator is not an easy one. It would indeed be almost impossible if he were still expected to follow to the letter the instructions laid down by Harvey when he conveyed his patrimonial estate of Burmarsh to the College for the endowment, among other objects, of an annual oration. It was natural that Harvey should desire that the oration should be delivered in Latin, for during the four years he spent as a medical student in Padua he acquired such a perfect colloquial knowledge of the language that he thought with equal facility in Latin and English, and the manuscript notes for his Lumleian lectures are written in a quaint mixture of the two languages. But happily in course of time more and more freedom of action has been permitted to the orator. In the oration of 1863 Dr. Alexander Sutherland asked whether it would not be more convenient for the audience and easier for the orator to substitute English for Latin. The following year Dr. Robert Lee delivered the last oration in Latin; in 1865 Sir Henry Acland delivered the first in English. Since that date Harvey's injunction that the oration should be in Latin has no longer been obeyed, a mercy to those orators who, like myself, have forgotten most of the little Latin they ever knew, and perhaps a still greater mercy to the majority of their audience. In 1846 Dr. John Elliotson, rightly believing that he had something of real importance to say on the subject of "Mesmerism," thought it necessary to take the unprecedented precaution of having a translation of his oration printed after the Latin original. So great was the general opposition to mesmerism at the time that the editor of THE LANCET suggested that the portrait of Harvey should be turned with its face to the wall during the delivery of the oration.

I wonder how many fellows of the College to-day would be capable of composing a Latin oration which would have satisfied Sir Henry Halford, who was president when the College moved from its third home in Warwick-lane near St. Paul's Churchyard to its present quarters in 1825, and who was as famous for the ease and elegance with which he spoke Latin as for his skill as a physician. He was accustomed to compose Latin verse to beguile the tedium of driving in his carriage from one noble patient to another, and was so impressed with the importance of the "classical culture and staid philosophic habit of mind" engendered by education at the older universities that he strongly opposed the abolition of the rule that the fellowship should be confined to graduates of Oxford and Cambridge. It was not until 1835 that in spite of his continued opposition the reform was introduced.

Benefactors

Harvey desired the orator to commemorate "all the Benefactors of the College by name, and what in particular they have done for the benefit of the said College, with an exhortation to others to imitate those Benefactors." He would rejoice that to-day our benefactors have become so numerous that this is no longer possible, for such a recitation, if brought up to date, would occupy the greater part of my time. I will therefore do no more than refer to certain recent benefactions of a novel character, which have an important bearing on the present and future activities of the College. Benefactors in the past have endowed lectureships to give fellows an opportunity to describe the results of their original investigations and observations, and others have founded prizes to mark the accomplishment of good work done in various branches of medicine. But until recently the College had no means of encouraging young men of promise to follow Harvey's further instruction to seek every means of advancing the science of medicine by research. They were too often compelled to occupy much of their time with routine duties, which required no intellectual gifts and offered no sort of mental training, in order to earn a living. This deficiency has now been partly overcome by the munificence of the Leverhulme Trustees, James Maxwell Grant Prophit, Eliza Streatfeild, and Sir George Mackenzie. It is gratifying to be able to record that the holders of the research scholarships founded by these benefactors have already done much admirable work. Four of them, Dr. J. F. Brock, Dr. S. J. Hartfall, Dr. R. L. Noble, and Dr. C. C. Ungley, have made important contributions to our knowledge of the subject which I propose to discuss to-day in connexion with the modern application of the Harveian method of research.

Research

Harvey invited the orator "to exhort the Fellows and Members of the College to search and study out the secrets of Nature by way of experiment." But he was equally alive to the importance of accurate observation. In "De Generatione" he notes how

> "many remarkable discoveries have been achieved by men who, following the traces of nature with their own eyes, pursued her through devious but most assured ways till they reached her in the citadel of truth. And truly in such pursuits it is sweet not merely to toil, but even to grow weary, when the pains of discovery are amply compensated by the pleasures of discovery. . . . It were disgraceful, therefore, with this most spacious and admirable realm of nature before us, and when the reward often exceeds the promise, did we take the reports of others upon trust . . . Nature is herself to be addressed; the paths she shows us are to be boldly trodden; for thus, and whilst we consult our proper senses,—shall we penetrate at length into the heart of her mystery."

Harvey on the Stomach

In 1642, whilst Harvey was in attendance on the King, a mob of citizen-soldiers entered his lodgings in Whitehall, stole all his furniture and scattered his papers, amongst which were the "Medical Observations" he had been collecting for many years and which he had intended to publish. Consequently much of what Harvey wrote is lost, and little is known about his interests in medicine beyond his two great works "De Motu Cordis" and "De Generatione." But there is a hint in the latter that he was a forerunner of Beaumont, Pavlov, Starling, and Cannon, the pioneers of gastro-intestinal physiology, as his observations on the digestion of birds contain without doubt the earliest recorded description of the motor functions of the stomach.

> "Almost all birds are provided," he wrote, "with a double stomach; one of which is the crop, the other the stomach, properly so called. In the former the food is stored and undergoes preparation, in the latter it is dissolved and converted into chyme. . . . In the crop the active grain that is swallowed is moistened, macerated,

* The Harveian oration delivered at the Royal College of Physicians of London on St. Luke's Day, 1937.

and softened, and then it is sent on to the stomach that it may there be crushed and comminuted. For this end almost all the feathered tribes swallow sand, pebbles, and other hard substances, which they preserve in their stomachs, nothing of the sort being found in the crop. Now the stomach in birds consists of two extremely thick and powerful muscles . . . so placed that, like a pair of millstones connected by means of hinges, they may grind and bruise the food; the place of teeth, which birds want, being supplied by the stones they swallow. In this way is the food reduced and turned into chyme; and then by compression . . . the softer and more liquid part is forced out, . . . and is transferred to the commencement of the intestinal canal. . . . The stones and other hard and rough substances which the birds have swallowed, if long retained, become so smooth and polished that they are unfit to comminute the food, when they are discharged. . . .

"If you apply the body of a hawk or an eagle, or other bird of prey, whilst fasting, to your ear, you will hear a distinct noise, occasioned by the rubbing, one against another, of the stones contained in the stomach."

With the exception of a single reference to the subject by Hippocrates this is, I believe, the only recorded observation made by direct auscultation before 1800, when Bayle, whilst attending the lectures of Corvisart with Laënnec, examined the heart of a patient by applying his ear to the precordial region. The College possesses a reproduction of an imaginative painting of Harvey seated under a hedge reading a book whilst in charge of the Prince, afterwards Charles II, and the Duke of York during the battle of Edgehill. I would commend Harvey with his ear applied to the body of a fasting eagle as a pleasing subject for a companion picture. Thirty years ago I obtained permission to repeat on a giraffe in the Zoo some observations I was making on the sounds heard on auscultation of the back and epigastrium during swallowing, as I thought that the length of its œsophagus would make their analysis less difficult. However, I had not Harvey's courage, and the experiment is still waiting to be made.

No further observations on the movements of the stomach were made in the two hundred years which followed the publication of "De Generatione." Then in the course of his investigations on Alexis St. Martin's stomach Beaumont studied its movements, and in the latter half of the nineteenth century several physiologists investigated the movements and their nervous control in the exposed stomach of animals. But in 1897, when I went up to Oxford, the stomach was still portrayed in the text-books of anatomy as an enormous inert sac hanging across the middle of the abdomen. That same year a first-year Harvard medical student, W. B. Cannon, had the inspiration to render the stomach of cats opaque to the rays recently discovered by Röntgen by adding bismuth salts to the food, a method which was soon to be applied to man as well as to cats and was to open a new era in the investigation of the physiology and pathology of the stomach by visualising the gastric movements and so making it possible for every physician to be a Beaumont and every patient an Alexis St. Martin.

It is clear from the quotation I have given that Harvey regarded the stomach as the organ in which the food is diluted, softened and broken up in preparation for its absorption from the intestines. His work on the circulation of the blood had convinced him that the mesenteric veins convey nourishment from the intestines to the liver and thence by the vena cava to the heart, which distributes it to all parts of the body. It is curious, however, that in his old age he refused to accept Pecquet's convincing demonstration that the lacteals, which he had himself observed in the course of his dissections before Aselli had published the first description of them in 1622, were also concerned with the absorption of nourishment from the intestines.

Harvey's interest in physiology was thus not confined to the circulatory and generative organs, and his observations and experiments on the physiology of digestion were of fundamental importance. Instead of tracing the evolution of knowledge concerning the circulation since Harvey's time, as several of my predecessors have done, I propose to describe how the Harveian methods of combined observation and experiment have led to our present knowledge of the functions of the stomach.

Harvey and Beaumont

In the fifty-second Exercise of "De Generatione" Harvey describes the case of a young nobleman, the apex of whose heart, covered by a suppurating membrane, was exposed as a result of an injury he had received as a child. In spite of this he was in excellent health and "felt adequate to any exercise or expedition." Harvey describes how he demonstrated to King Charles the movements of the young man's heart, and how in systole the apex emerged and protruded. "And his most excellent majesty, as well as myself, acknowledged that the heart was without the sense of touch; for the youth never knew when we touched his heart."

Two hundred years later Alexis St. Martin, a young Canadian trapper, received a gunshot wound in the abdomen. He came under the care of William Beaumont, a surgeon in the United States Army, who took him into his own house and for two years nursed him back to health. The wound eventually healed, leaving a gastric fistula surrounded by a ring of prolapsed mucous membrane. Beaumont, who was endowed with the same spirit of inquiry as Harvey, engaged St. Martin as his servant, and for two periods between 1825 and 1833, amounting in all to twenty-four months, made almost daily observations and experiments, which laid the foundation of our knowledge of gastric digestion. Harvey's observations were concerned with the mechanical action of the stomach in altering the physical properties of the food so as to render it fit for absorption. Beaumont's work was concerned with the changes which occur in the stomach as a result of the digestive activity of the gastric juice. He described the physical properties of gastric juice and had samples analysed, confirming Prout's recent discovery that it contained free hydrochloric acid. He showed that the juice is secreted only in response to the entry of food into the stomach and demonstrated its action on different kinds of food both within the body and *in vitro*. He recorded how as a result of fear and anger, febrile disturbances, and excessive indulgence in alcohol the gastric mucous membrane became red and swollen and the juice was replaced by a secretion of mucus.

For twenty years after 1833 Beaumont made repeated attempts to persuade St. Martin to return to him so that he could continue his investigations, but without success. In 1840 the British Association made a grant of £200 with the object of bringing St. Martin to England so that further experiments on the physiology of digestion might be carried out on him in this country, but he refused to leave his Canadian home, where he died, aged 83, in 1880.

The next important step in the progress of knowledge concerning gastric digestion was the employment of the stomach-tube, which had long been used as a means of treating cases of poisoning. This

was done by Leube in 1871, though the first "test-meal" had been given over a century before by Réaumur to his pet kite, which had the habit—like other kites—of rejecting from its stomach anything which it could not digest. In a paper on the digestion of birds read before the Académie des Sciences in 1752 he described how he fed his kite by giving food enclosed in small metal tubes, the ends of which were closed by a wire grating. The tubes were subsequently rejected and their contents examined. Meat was partly dissolved and showed no sign of putrefaction. Bone was also dissolved, but vegetable material remained unaltered. He then filled his tubes with pieces of sponge and obtained for the first time pure gastric juice, which he found turned blue paper red.

In 1885 Ewald and Boas invented the test-breakfast, and in 1915 Rehfuss, using Einhorn's duodenal tube, introduced the fractional test-meal. In 1920 the normal standard of secretory activity was laid down by Izod Bennett and Ryle as a result of their examination of a hundred medical students. Since then many physicians, including several fellows and members of the College, have carried out physiological and clinical observations with the fractional test-meal, which have done much to elucidate the complicated problems concerned with the secretory activity of the stomach in health and disease.

The Antiseptic Barrier of the Stomach

As long ago as 1784 Spallanzani of Pavia demonstrated the antiseptic action of gastric juice by showing that it prevented and even arrested the putrefaction of meat. Thus meat moistened with gastric juice did not decompose, and the putrid odour of decomposing meat was lost on introducing it into the stomach of an animal. In recent years the subject has been reinvestigated by Knott, a member of the College, who has shown that the normal sterility of the stomach and upper part of the small intestine depends upon the secretion of hydrochloric acid in the gastric juice. In achlorhydria the abnormally alkaline secretion of the contents of the small intestine affords a favourable medium for the growth of the *Bacillus coli*, which invades not only the small intestine, but also the stomach. The infection of the duodenum is of special importance, as it often leads to an ascending infection of the bile-ducts and is responsible for many cases of cholecystitis. The loss of the acid antiseptic barrier of the stomach also permits infection of the small intestine by swallowed organisms in streptococcal infections of the teeth and tonsils, and Camps has demonstrated the importance of the acid barrier as a protection against infection by typhoid, paratyphoid, dysentery, and cholera germs. Utilisation of this knowledge should in the future do much to reduce the incidence of these infections amongst Europeans. A fractional test-meal should be an essential part of the examination of soldiers and civilians about to serve in the East, and the presence of achlorhydria, which would be discovered in about 4 per cent. of their number, should be regarded as an absolute bar against such service.

Gastric Juice and the Absorption of Iron

Faber of Copenhagen showed in 1909 and again in 1913 that achlorhydria in women is often associated with simple anæmia. This simple achlorhydric anæmia has been very thoroughly investigated during the last few years, especially by Witts and subsequently by other fellows and members of the College. When normal gastric juice is secreted, the iron present in organic combination in the food is readily assimilated by the small intestine. In the absence of free hydrochloric acid deficient absorption of iron occurs. This leads to a simple microcytic anæmia if as the result of an ill-chosen diet the quantity of iron in the food is no greater than the minimal amount required by people with normal gastric juice, especially if excess of blood is lost owing to menorrhagia.

Addison's Anæmia a Disease of the Stomach

In 1880 Samuel Fenwick, a fellow of the College, whose admirable work on the pathology of the stomach is apt to be forgotten to-day, noticed that the glandular structure of the gastric mucous membrane of patients dying from Addison's anæmia was atrophied and contained so little pepsin that no post-mortem digestion took place. He suggested that the lack of normal gastric juice which resulted from this atrophy must interfere with the formation of blood and that Addison's anæmia might consequently be regarded as a direct result of atrophy of the gastric glands. In the years which followed the constant association of Addison's anæmia with achlorhydria gradually became recognised, but Fenwick's theory was forgotten. The pioneer work of William Hunter on oral and intestinal sepsis led to the assumption that achlorhydria favoured the production of a hæmolytic toxin in the intestines, and that this was the cause of Addisonian anæmia. Against this theory, however, was the absence of any change in the blood in the large majority of people with achlorhydria, and gastric digestion was as completely in abeyance and bacterial growth in the stomach and duodenum was just as vigorous in uncomplicated achlorhydria as in achlorhydria with severe anæmia. Moreover the administration of hydrochloric acid failed to produce any striking improvement in most cases of Addison's anæmia. It seemed clear therefore that although achlorhydria was constantly present in Addison's anæmia, it was not directly responsible for its development.

This was the state of our knowledge on the subject when in 1931 Castle, a young Harvard physician, who had been working with Minot on the treatment of Addison's anæmia with liver, solved the problem in a manner which would have delighted the heart of Harvey. He first demonstrated that the administration of the gastric juice of a normal man had no more effect on the blood of a patient with Addison's anæmia than an artificial gastric juice consisting of hydrochloric acid and pepsin. He then made the remarkable observation that a mixture of meat with gastric juice was as effective as liver in the treatment of the anæmia, but that this was not a result of peptic digestion, as the gastric juice could not be replaced by hydrochloric acid and pepsin, and the mixture was most effective when the hydrochloric acid was completely neutralised so as to prevent the occurrence of peptic activity. It is now known that the gastric juice contains an intrinsic factor, hæmopoietin, which reacts with an extrinsic factor present in meat and in other foods to produce an active principle that is stored in the liver and passes as required to the bone-marrow, the normal activity of which depends upon its presence. In the absence of this principle the embryonic blood-forming tissue fails to reach maturity and the characteristic blood picture of Addison's anæmia results. The history of human physiology since the time of Harvey contains few more fascinating examples than this of the solution of an apparently insoluble problem by inductive reasoning and experiment.

Neuropoietin

In 1922 an Australian fellow of the College, J. R. Bell, and I found that achlorhydria is constantly present in subacute combined degeneration of the spinal cord, and that in untreated cases an Addisonian type of anæmia almost invariably develops before death. It was at first thought that Minot's discovery of the liver treatment of Addison's anæmia was not applicable to the associated nervous disorder, but Ungley and Suzman, the former a Leverhulme scholar and the latter a member of the College, have shown that when the dosage is adequate the disease can not only be arrested but great improvement and sometimes complete recovery may be expected to occur. As Addison's anæmia and subacute combined degeneration of the cord rarely develop with equal rapidity in the same patient, and in many cases either may be present alone for long periods with no symptom or sign of the other, it seems clear that they must be caused by deficiency in different, though closely associated substances. Further evidence of this is afforded by the fact that the gastric juice of patients with achlorhydria and subacute combined degeneration of the spinal cord but normal blood can be shown to contain hæmopoietin by its curative influence on Addison's anæmia. I have suggested that the gastric juice contains an additional ferment, to which the name neuropoietin may be given. This is the intrinsic factor which forms with an extrinsic factor in the food an active principle that is stored in the liver and is required for the normal nutrition of the central nervous system. Its deficiency results in subacute combined degeneration of the spinal cord. The gastric juice thus has the surprising function of supplying a substance essential for the nutrition of the central nervous system.

It is now known that the proximal half of the stomach secretes hydrochloric acid and pepsin and that the distal half secretes an alkaline juice containing hæmopoietin and neuropoietin (Meulengracht). Severe and progressive gastritis leads first to the disappearance of hydrochloric acid, then of pepsin, and finally, when the pyloric half of the stomach is sufficiently damaged, hæmopoietin and neuropoietin are no longer secreted.

The stomach is thus an organ of extraordinary versatility. It protects the intestines from chemical and mechanical insults by diluting, softening, and breaking up the food; it digests protein and curdles milk; it offers an antiseptic barrier to bacteria from above and below; and it produces substances which are essential factors in the production of the active principles required for the blood-forming activity of the bone-marrow and for the nutrition of the central nervous system.

Human Vivisection

In recent years surgery has offered abundant opportunities for studying the physiology of the stomach in man by means of operations which have often made experiments on animals superfluous. Investigations after gastric operations, most of which have been carried out by fellows and members of this College in coöperation with fellows of the College of Surgeons, have shown that in spite of its many functions the stomach is not an absolutely essential organ. Gastrojejunostomy and, more frequently, gastrectomy may totally abolish gastric digestion by giving rise to achlorhydria, but in spite of this the stools contain no excess of undigested food, and the loss of the protection against mechanical and chemical irritation and of the acid antiseptic barrier of the gastric juice manifests itself by a tendency to diarrhœa in only a small proportion of cases. Simple achlorhydric anæmia is, however, a common sequel of partial gastrectomy, but Addison's anæmia is surprisingly rare and does not even develop in every case of total gastrectomy. This is now known to be due to the fact that the mucous membrane of the first part of the duodenum, the glands of which are similar in structure to those of the pyloric end of the stomach, secretes a juice containing hæmopoietin, the quantity of which is sufficient in most people to compensate for the absence of gastric juice.

The interest shown by Harvey and his friend and patron, King Charles I, in the absence of sensibility of the heart would have been extended to the observations which it is now possible to make on individuals whose stomachs have been completely removed by operation. Twenty-six years ago in my Goulstonian lectures I showed that the mucous membrane of the alimentary tract from the pharyngo-œsophageal sphincter to the junction of the rectum with the anal canal is insensitive not only to tactile but also to thermal stimuli, and that the only adequate stimulus to sensation in the stomach and intestines is distension, with the exception of the warm epigastric sensation produced by the introduction of strong alcoholic drinks into the stomach. After complete removal of the stomach a patient does not spontaneously appreciate his loss by the absence of any familiar sensation. Appetite and the general sensations associated with hunger are unaffected, and on swallowing nothing unusual is noticed unless the patient takes his food too rapidly, when he feels some fullness in the epigastrium, but he cannot distinguish this from what he would have felt under similar conditions before his operation, although presumably it is caused by distension of the part of the jejunum anastomosed with the œsophagus. Close observation, however, shows that the feeling of emptiness after long abstention from food is not felt, and the patient does not experience the pleasant glow in the epigastrium which should follow the drinking of neat spirits or a liqueur.

In describing the development of our knowledge of the functions of the stomach I have mentioned only a few of the names of those to whom we are indebted for that knowledge. It will be observed that the majority of them, especially during the last thirty years, were hospital physicians. We see therefore that to-day there are still physicians engaged in the practice of medicine who endeavour to follow in the footsteps of Harvey and take an active part in advancing the science of physiology.

Clinical Research and Gastric Pathology

The last thirty years which have witnessed such a revolution in our knowledge of the functions of the stomach have witnessed an equally great revolution in our knowledge of gastric disorders. When I was house physician in 1905 the X rays had not yet begun to throw light on gastro-intestinal problems. We occasionally gave a Boas-Ewald test-meal, but the information it yielded was of infinitely less value than that obtained from the modern fractional method. The significance of occult blood was unknown. Consequently diagnosis depended upon the history and physical examination alone. As the latter is completely negative in the large majority of gastric cases, diagnosis depended almost entirely on the history. But the correlation of history with pathological findings was possible only in fatal cases, as the pathology of the living—the greatest gift of surgery to medicine—was still in its infancy.

Consequently the diagnosis of the minor and chronic disorders was a matter of guess-work, as there were no means of discovering the pathological cause of symptoms in non-fatal cases. But a former Harveian orator, Sir William Hale-White, and the President of the College, Lord Dawson, were at that time showing that combined clinical and pathological research in the tradition of Bright, Addison, and Wilks could still bring important facts to light, when they demonstrated that gastric ulcer was really a disease of middle life affecting males more frequently than females and not, as had hitherto been universally believed, a disease of anæmic young women. This discovery was soon to be confirmed by Moynihan, whose genius has been curiously underestimated by his surgical colleagues, who, whilst acclaiming what he did for the art of surgery, forget what he did for the science of medicine. His discovery of the clinical picture of duodenal ulcer was as much a piece of original scientific research as the discovery of a new element or a new star and as equally deserving of recognition. It is perhaps difficult for the present generation to realise that thirty years ago, when Moynihan was already accurately diagnosing duodenal ulcer from the clinical history almost daily in Leeds, it had never been diagnosed in London apart from an occasional lucky guess in cases of perforation and of melæna, and his papers on the subject were regarded as the products of a too vivid imagination. Duodenal ulcer was diagnosed in the absence of hæmorrhage and perforation for the first time at Guy's Hospital in May, 1907, and its frequency was not recognised on the Continent till nearly twelve years later. In 1913 Ewald, one of the leading German gastro-enterologists of the time, stated his belief that only one duodenal ulcer occurred for every forty-five gastric ulcers.

Pathogenesis of Carcinoma of the Stomach

It is now generally believed that carcinoma never develops in a healthy stomach. There is abundant evidence to show that in the 70 per cent. of cases with achlorhydria the carcinoma results from malignant degeneration of chronically inflamed mucosa, the achlorhydria being a result of the preceding gastritis and not of the carcinoma. In the remaining 30 per cent. of cases with a normal or high acidity the evidence is equally conclusive that the carcinoma is a result of malignant degeneration of a simple ulcer. The chronic gastritis and the simple ulcer are caused by chronic irritation, the former especially in individuals born with a hyposthenic gastric constitution and the latter in those with a hypersthenic gastric constitution.

The irritants which give rise to gastritis and gastric ulcer are mechanical, chemical, and thermal; food insufficiently broken up and softened owing to its coarse character, to hurried meals, or to insufficient teeth or dentures irritates the mucous membrane mechanically; alcohol and tobacco, highly seasoned food, drugs, and saliva swallowed by patients with oral sepsis are chemical irritants; very hot and very cold food and drinks are thermal irritants.

The total incidence of cancer is approximately the same in both sexes, in the rich and the poor, and in all nations. If cancer of the uterus and breast are excluded, the relative incidence in different organs is the same in men and women. It is also the same in the rich and the poor and in different nations, with one supremely important exception—the stomach being involved three times as often in the poor as in the well-to-do, and in only 22 per cent. of all cases of cancer in men in Great Britain compared with 42 per cent. in America, 55 per cent. in Holland, Bavaria, and Spain, and 66 per cent. in Czechoslovakia.

We have recently tried to discover the cause of the difference between the incidence in Great Britain and Holland—22 compared with 55 per cent. The total incidence of cancer is the same in the two countries, and we have found, as might be expected, that the incidence of the hyposthenic and hypersthenic stomach is also the same. We must therefore look for a difference in extrinsic causes. Herbert and Bruske have compared the teeth and dietetic habits of 500 out-patients at Guy's Hospital with those of 500 at the Wilhelmina Gasthuis in Amsterdam: 58 per cent. of the Dutch ate too quickly and chewed insufficiently compared with 11 per cent. of the English; gross oral sepsis was present in 44 per cent. of the Dutch and 28 per cent. of the English. Spiced foods were eaten in excess by 48 per cent. of the Dutch and 19 per cent. of the English, and official statistics show that the consumption of spirits is much higher in Holland than in England; 43 per cent. of the Dutch were accustomed to swallow their food and drink at a temperature over 60° F., compared with only 22 per cent. English. Lastly, 62 per cent. of the Dutch but only 13 per cent. of the English smoked more than four ounces of tobacco, whether cigarettes, pipes, or cigars, a week, and 18 per cent. of the Dutch, but none of the English, chewed tobacco.

It is surely significant that wherever there is a difference between the dental condition and the dietetic and smoking habits in England and Holland it is to the advantage of England. It seems reasonable to assume that the more frequent and more severe irritation of the gastric mucosa in the Dutch leads to a greater incidence of achlorhydric gastritis in individuals with the hyposthenic gastric constitution and of gastric ulcer in those with the hypersthenic gastric constitution. If our views as to the origin of carcinoma of the stomach are correct, this would explain why its incidence is so much greater in Holland than in Great Britain. Insufficient teeth and dentures and oral sepsis, coarser food, and stronger tobacco may account for the greater incidence in the poor compared with the rich.

At present we have no knowledge of how the general liability to cancer can be controlled, and the organ inferiority which predisposes to achlorhydric gastritis on the one hand and to gastric ulcer on the other cannot be modified. But the extrinsic causes—gastric irritants of all kinds—however trivial they may appear to be, can be avoided, and it should at least be possible to lower the incidence in the very poor by two-thirds to bring it down to the level of the incidence in the well-to-do. By preventing the development of achlorhydric gastritis and gastric ulcer in the predisposed by simple hygienic methods cancer too should be prevented; and even if gastritis and gastric ulcer are not abolished, their early recognition and adequate treatment should result in their cure before malignant degeneration has had time to occur.

Gastroscopy

The fractional test-meal has made it possible to investigate the secretory functions of the stomach with considerable accuracy, and the X rays afford a means of studying its motor functions and the deformities produced by disease. But so long as the mucous membrane of the stomach remained inaccessible to visual inspection there could be little advance in our knowledge of gastritis, which is now known to be much the most common of all gastric disorders.

The invention of a flexible gastroscope by Schindler in 1932 may therefore be regarded as a landmark in the study of the stomach in health and disease, which ranks in importance with that of the cystoscope in the study of the bladder. I am glad that in this country the gastroscope has not suffered the fate of the cystoscope and come to be regarded as a surgical instrument. Several of our younger fellows and members are already expert in its use, and their investigations are adding greatly to our knowledge of the pathology of the stomach. If one thinks for a moment how little could be known of glossitis or pharyngitis without inspection of the tongue or pharynx, it is easy to realise how much our knowledge of gastritis must gain from gastroscopy. The interpretation of radiograms of the stomach is being revolutionised, and for some purposes, such as the investigation of post-operative gastric disorders and of the healing of gastric ulcers under treatment, gastroscopy will in the future take the place of radiology.

Medical Friendship

Harvey desired that the fellows of the College should live in brotherly love and affection. This is best promoted by frequent opportunities of meeting, such as are offered by the four annual dinners of the Fellows' Club. I am happy that the feast which Harvey desired should be "kept within the College" on the day of the oration "for all the Fellows that shall please to come," and towards the cost of which he made on the occasion of the first dinner an endowment of fifteen pounds, is to be revived to-night, as it gives an additional stimulus to good fellowship among fellows of different generations.

Until thirty years ago provincial fellows too often had to work in most undesirable isolation. This is now a thing of the past, largely owing to the good work of the Association of British Physicians, the foundation of which in 1907 we owe to seven former Harveian orators—Osler, Herringham, Garrod, Rose Bradford, Rolleston, Hale-White, and Robert Hutchison. The Association also gives London physicians an opportunity of seeing the hospitals and laboratories of other university cities in Great Britain and Ireland, but it is still a blot on London medicine that there is so little intercommunication between the staff and students of the twelve teaching hospitals, in striking contrast with the conditions in the University of Paris, where students are free to attend clinics and lectures in any hospital they please. Visitors from the Dominions and America generally know more about the methods of teaching and the day-to-day work of the London hospitals than the hospital physicians themselves, who are satisfied to continue their activities in a far from splendid isolation. Occasional visits of a physician with his firm to a friend at another hospital is good for both physician and student, as I can testify from my own experience in the last few years, and I hope that this practice will become increasingly common.

The international relations of the College have in the past been very limited. On rare occasions distinguished physicians from abroad have lectured in this room, and during the tercentenary celebrations of the publication of "De Motu Cordis" two of the representatives of the learned societies of the world, Pavlov and Wenckebach, were elected honorary fellows.

In company with a group of fellows of the College I have in each of the past nine years made a pilgrimage to some foreign medical centre. We have been greatly impressed by the kindness with which we have always been received, and by the eagerness that our hosts have shown in demonstrating the work in which they were interested and in hearing about medical research and medical education in Great Britain. A direct result of the international coöperation which can follow such meetings is seen in a paper in the April number of the *Quarterly Journal of Medicine*, which would never have seen the light had it not been for the 1936 meeting of the Medical Pilgrims. In this paper Donald Hunter, Snapper of Amsterdam, and Witts describe a new syndrome of hypogonadism, alopecia, depression of metabolism, microcytic or macrocytic anæmia, subacute combined degeneration of the cord, and achlorhydria. They suggest that the syndrome is the result of a lesion of the anterior lobe of the pituitary gland, which must, it is assumed, produce under normal conditions a stimulant to the secretion of hæmopoietin. How greatly Harvey would have appreciated an investigation of this kind is clear from a letter he wrote to John Vlackveld of Haarlem six weeks before his death. "Nature is nowhere accustomed more openly to display her secret mysteries than in cases where she shows traces of her workings apart from the beaten path; nor is there any better way to advance the proper practice of medicine than to give our minds to the discovery of the usual law of nature, by the careful investigation of cases of rarer forms of disease." I should like to suggest that we might follow the example of our sister college and the Académie de Chirurgie of Paris by exchanging visits with the Académie de Medicine. Might we not also renew our old associations with the medical schools of Padua and Leyden, where so many of our seventeenth and eighteenth century fellows received the greater part of their medical education, and with the American College of Physicians, whose fellowship is open to Canadians as well as to citizens of the United States? We might in these and similar ways do something to extend Harvey's admonition to live in brotherly love and affection beyond the confines of the College to physicians in other parts of the world and so add our small, though by no means negligible, contribution towards the maintenance of peace by the promotion of international friendship.

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On St. Luke's Day, Oct. 18th, 1602, the youthful Harvey must have listened to the oration in Praise of Medicine, which every year opened the medical session in the University of Padua. I like to think that since his death fifty-five years later his spirit makes an annual pilgrimage to this College on St. Luke's Day to listen to the oration which he founded. He would regret the decay of classical education which has led to its delivery in English instead of Latin, but he would, I think, find no other sign of backsliding. Though modest in life, his vanity would be flattered by the efforts of a whole series of learned orators to bring to light everything which can add to our meagre knowledge of his life and character and of the friends among whom he worked. He would, I feel sure, have been particularly gratified by Dr. Robert Hutchison's clear demonstration that he was endowed with the priceless gift of a sense of humour.

He would have noted with surprise that the presidential chair is occupied this afternoon for the seventh year in succession by the same fellow, an event with only a single precedent since Sir Henry Halford ruled over the College for the twenty-four years between 1820 and 1844. He would realise that this could only be the result of the immense

satisfaction of the fellows for the manner in which its affairs have been conducted by Lord Dawson, during whose tenure of office the influence of the College on medical education, medical research, and the public health has become more profound and more far-reaching than ever before.

Harvey would be pleased to see how well his admonitions have been remembered, and to find that after three hundred years fellows and members of the College are still taking a leading part in "the research and study of the secrets of Nature by way of experiment." And at the end of each oration he would retire to the Elysian fields, happy in the knowledge that "to the honour of the profession" the fellows of the College "continue to live in mutual love and affection amongst themselves."

THE PATHOGENESIS OF MULTIPLE ANEURYSMS

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The conception that single or multiple aneurysms may in some cases be due to a congenital defect was first suggested by Eppinger in 1887. Fearnsides stated in 1916 that a congenital weakness of the arterial wall at the junctional points was an important factor in the formation of some intracranial aneurysms. The clinical syndrome which resulted from rupture of the congenital cerebral aneurysms was described by Collier in 1922, and was later fully studied by Symonds (1923, 1924). Forbus (1930) demonstrated the association of these cerebral aneurysms with a characteristic defect in the tunica media of the arterial wall at the angle formed by the branching of the vessels. This defect consists in an interruption in the muscular coat at the point of bifurcation of medium-sized arteries whose adventitia and intima are intact. Forbus showed that these defects were developmental in origin. Single and multiple aneurysms have, from time to time, been described on other arteries such as the splenic, hepatic, and renal, in which no inflammatory or degenerative change could be found. Since defects similar to those in the cerebral vessels occur in the walls of the abdominal arteries, it is possible that some of these aneurysms may have developed in association with such defects. Little attention had been given to this possibility before Forbus published his paper, but since then the idea has been much discussed, and clinical and pathological evidence in support of it has been advanced.

Schuster (1937), recording the pathology of a case of familial hæmorrhagic telangiectasia, described multiple aneurysms of the splenic artery. At the bifurcation of a tertiary branch of the artery a characteristic medial defect was found. In another branch at its junction with the parent artery, a minute dilatation was found and here also the media was deficient. She concluded that the aneurysms were probably of congenital origin. Bruce (1937), in discussing spontaneous intraperitoneal hæmorrhage, suggests that in some cases where no cause for the hæmorrhage can be found, rupture of a minute congenital aneurysm may have been responsible.

Further evidence that aneurysms on arteries other than the cerebral may be associated with developmental defects, seems to be given by the following two cases.

FIRST CASE

A woman of 45 had suffered for 9 years from symptoms caused by an intracranial aneurysm. She died from massive intraperitoneal hæmorrhage caused by rupture of a splenic aneurysm which had not previously caused symptoms.

She was unmarried and there was nothing of note in her family or personal history. Nine years before her death (Dec. 19th, 1936) she complained of blurred vision. This began suddenly and then slowly improved so that six months later she had recovered completely. She had no other symptoms. A year later she attended the Western Ophthalmic Hospital complaining of double vision. At this time paresis of the right superior rectus muscle was the only abnormality found; the blood Wassermann reaction was negative; she was well again in two months.

FIRST ADMISSION

No further symptoms developed until her eyesight slowly began to deteriorate, so that 5 years before her death she attended the Hospital for Nervous Diseases, Maida Vale, complaining of blurred vision. She was admitted to hospital under Dr. Douglas McAlpine.

Examination at this time showed that she was a well-nourished young woman who had a pronounced stammer. The right visual acuity was 6/36 and the left 6/12. There was bilateral optic atrophy which was very marked on the right side. The right visual field showed gross constriction of the nasal and upper temporal fields and the left field showed slight general constriction. The pupils were unequal, the right being slightly larger than the left. They reacted fairly well to light and briskly to accommodation. External ocular movements were full in all directions, and there was no nystagmus. The other cranial nerves were normal. No abnormality was found in the motor or sensory systems and the superficial and deep reflexes were normal. Except that the systolic blood pressure was 170 mm. of mercury and the diastolic 100, no abnormality could be found in the cardiovascular or other systems. The cerebro-spinal fluid at this time was under a pressure of 140 mm. of water. It was clear and colourless and had a total protein of 85 mg. per 100 c.cm. and 5 lymphocytes per c.mm. The colloidol gold curve was unchanged. The Wassermann reaction was negative in the blood and the cerebro-spinal fluid. Radiograms of the skull showed some thickening of the calvarium, but no abnormality could be seen in the optic foramina. She was discharged from hospital after two months and was observed regularly in the out-patient department.

The vision in the right eye slowly deteriorated, so that after 3½ years she could only perceive light with this eye, while the visual acuity in the left eye was 6/24.

SECOND ADMISSION

About this time (1½ years before death) she was again admitted. The visual acuity was as above. Both discs were atrophic, the vessels and the retinæ being normal. There was a temporal hemianopia in the left eye but it was impossible to obtain a field on the right. The left pupil was smaller than the right and was not quite circular. The right pupil reacted sluggishly to light and its reaction was not well sustained. The left pupil reacted quite well to light. There were no other abnormal physical signs. The patient had no headache and apart from the progressive failure of sight and occasional flashes of red and yellow light in front of both eyes she had no other complaints. She continued under observation as an out-patient till her death which took place suddenly in bed at night.

POST-MORTEM EXAMINATION

An inquest autopsy was performed by Dr. I. Skene Keith, who found that the cause of death was a massive intraperitoneal hæmorrhage from a ruptured aneurysm of the splenic artery. This aneurysm and the brain were made available for our examination by the kindness of Dr. Keith.

The body was that of a well-nourished woman about 45 years. The skin was normal but was extremely exsanguinated.

Chest.—The heart was normal in size and position. The pericardium was normal and no abnormality was found

in the valves or the great vessels. The lungs and the pleura showed no gross abnormality and there was no evidence of any chronic infection.

Abdomen.—The peritoneal cavity was filled with many pints of recent blood clot. The peritoneum was smooth and glistening and there was no reaction to the hæmorrhage. The pelvic contents were normal and there was no evidence of pregnancy or of ruptured gestation. The liver, gall-bladder, and spleen appeared normal on section. The stomach and intestines were also normal.

Anterior to the pancreas, indenting it, and pushing the first part of the duodenum forwards, there was an oval tumour 10 cm. by 7 cm. in diameter (Fig. 1). This tumour was firm and hard but was hollow in its upper part. There was a tear about 3 cm. long situated on the anterior surface and opening into the lesser sac. It contained blood clot. Further examination showed it to be a saccular aneurysm of the splenic artery. The artery was continued beyond it to the left. The pancreas, which appeared to be wrapped round the aneurysm, was otherwise normal. The aorta, except for a few fatty streaks, did not show any abnormality, and there was no atheroma.

Brain.—This was examined after hardening. The cortex appeared normal. The optic nerves were thin and grey. There was no evidence of arachnoiditis, and the only other abnormalities were the presence of multiple aneurysms of the branches of the circle of Willis, and a few patches of atheroma on the large basal arteries.

THE CEREBRAL ANEURYSMS

The largest of the four aneurysms (A in Fig. 2), just under 1 cm. in diameter, arose from the junction of the posterior communicating artery with the termination of the left common carotid artery. It was saccular and had become pedunculated. It lay directly underneath the optic chiasma and although its exact relationship to this structure in the living state could not easily be judged from the post-mortem specimen, it was undoubtedly the only cause of the chiasmal pressure. Its wall was very thin, in parts yellowish-white and opaque, and in others

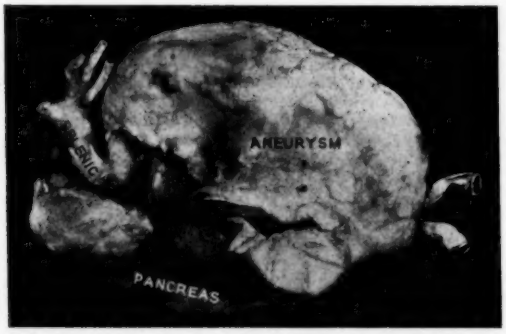

FIG. 1 (Case 1).—The abdominal aneurysm. On the left are branches of the cœliac axis, where defects in the tunica media were found, and on the right two large divisions of the splenic artery can be seen. The rupture of the aneurysm into the lesser sac can be seen in the lower part just above the pancreas.

translucent. There was little thrombus in its cavity. The second aneurysm (B in Fig. 2), about half the size of that already described, was at the division of the left common carotid artery into the middle and anterior cerebrals, and the anterior choroidal artery seemed to arise from its sac. Its wall was rather dense and opaque. The third aneurysm (C in Fig. 2) was similar and arose from the left middle cerebral where it divided into its main cortical branches. The fourth (D in Fig. 2) was a very small thin-walled sac lodged in the fork of the first main division of the left anterior cerebral artery. It was little bigger than a pin head and appeared between the two arteries like a berry. As well as these discrete aneurysms there were areas of dilatation at the points of bifurcation of the branches of the circle of Willis. It was difficult to decide whether these were primarily congenital in origin or whether the dilatation had occurred as the result of local atheroma. On both sides the superior cerebellar artery arose from the basilar artery in two separate trunks and continued double throughout its course.

Histological examination of the sac of the fourth aneurysm showed that it was composed of fibrous tissue in which no muscle could be found. The mouth of the sac was

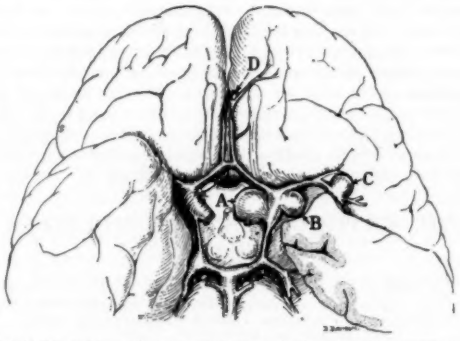

FIG. 2 (Case 1).—The base of the brain showing the aneurysms in situ.

situated in the angle of bifurcation of the arteries. The media and internal elastic lamina had stopped abruptly at its edge. There was no evidence of inflammatory change in the aneurysm walls.

THE ABDOMINAL ANEURYSM

Of the rest of the arterial tree only the abdominal aneurysm and the attached vessels were available for investigation. The aneurysm was situated on the splenic artery and appeared to have arisen at a point of bifurcation of the artery near the hilum of the spleen (Fig. 1). It was difficult to ascertain the exact point from which it had arisen on account of the size which it had attained, but it could be seen that the splenic artery was continued on its left side as two independent vessels.

Microscopical examination of the origin of three branches arising close together from the main arterial stem proximal to the aneurysm showed characteristic medial defects in both forks. In one of these forks the muscle coat was completely absent (Fig. 3). A little fibrous tissue filled the gap and a thickened tunica intima bridged over the defect. In the other fork a similar defect was found. These defects were followed in serial sections through the junction, and were therefore not due to artefact. There were scattered atheromatous changes in the vessels, but these were in no way related to the muscle defects. The walls of the aneurysm itself were composed of dense fibrous tissue and varied greatly in thickness. The aneurysm was half filled with a firm laminated thrombus.

Comment.—The cerebral aneurysms present were therefore typical of those regarded as congenital and were not atheromatous or inflammatory in origin. This is further evidenced by the long history of the case indicating that one aneurysm had been present for at least nine years.

SECOND CASE

The second case was that of a woman aged 56, who died after a diagnosis of subarachnoid hæmorrhage had been made. At autopsy a subarachnoid hæmorrhage from a berry aneurysm, and a massive intraperitoneal hæmorrhage without adequate cause, were found.

She was admitted to the National Hospital, Queen-square, under the late Dr. James Collier on June 3rd, 1934, and died four days later. There was nothing of note in the family or personal history of the patient.

PAST HISTORY

Since an early age she had had frequent and severe frontal headaches, which had been getting more severe

in recent years. The headaches were not associated with any other symptoms. Twenty years before admission she had a major epileptic convulsion. Since then she had had attacks of epigastric discomfort, accompanied by feelings of giddiness. In these there was no loss of consciousness, and she was well after resting for half an hour. The attacks were frequent, but were so slight that she paid little attention to them. For several months she had had slowly failing vision which was not materially improved by glasses.

Five days before admission she had a severe headache which followed one of her attacks of giddiness. It gradually became more severe and her husband said that she was a little queer in her mind. Morphia was given to ease the headache. The patient vomited twice that night. The headache became unbearable and the next day the patient was drowsy and rambled. She appeared to be confused. She then improved somewhat until three days later, when she had an epileptic fit. In this she fell to the ground, went blue and was unconscious for two minutes. After this the headache was much less intense, but she became doubly incontinent. She became more drowsy, and had a slight rise in temperature. The day before admission she had a slight squint and complained of double vision.

EXAMINATION

On admission she was drowsy but could coöperate fairly well. She could speak clearly but perseverated from time to time. Her memory was fairly good, and she was well orientated. Visual acuity could not be measured but it was much diminished in both eyes. She had diplopia and a homonymous hemianopia to the left. There was bilateral papillœdema with hæmorrhages which were more marked on the right. Here the hæmorrhages were very large indeed. The vessels were healthy. There was a partial third nerve palsy on the right side, the left corneal reflex was diminished, and sensation was impaired on the left side of the face. There was slight weakness of the left side of the face, of the left sternomastoid and of the trapezius, and the tongue was protruded slightly to the left. There was an incomplete flaccid hemiplegia on the left side, involving the upper limb particularly. The reflexes in the right arm were sluggish, and elsewhere they were absent. Both plantar responses were extensor. Sensation was normal. The arteries were rather hard and tortuous and the blood pressure 200/100 mm. of mercury. Other systems were normal. The day after admission she developed a complete left hemiplegia and hemianæsthesia.

Lumbar puncture showed the cerebro-spinal fluid to be under increased pressure. It was yellow with slight blood admixture. There were 7 cells per c.mm., 70 per cent. lymphocytes, 20 per cent. mononuclears, and 10 per cent. polymorphonuclears. Protein 90 mg. per 100 c.cm. Nonne-Apelt and Pandy tests were weakly positive. Lange curve showed no change. Wassermann reaction negative in blood and cerebro-spinal fluid. Three days later she died.

POST-MORTEM EXAMINATION

An autopsy was performed by Dr. J. G. Greenfield, to whom we are indebted for permission to publish the case. He found that on removing the cranial vault the dura mater on both sides of the vertex, but especially on the right side, looked bluish and was tense, and on opening it a thin layer of blood was found between it and the arachnoid. There was also blood staining of the cerebro-spinal fluid in the cisterna magna and a definite cerebellar pressure cone. There was considerable clotted blood in the basilar cistern, Sylvian fissures, and between the frontal poles. On separating the latter, blood clot came out from cavities in both frontal lobes which had openings on to the mesial surface. When the blood was cleared from the meninges a small saccular aneurysm, which had burst anteriorly, was found arising from the middle of the anterior communicating artery. No other aneurysm or evidence of disease was seen on the cerebral arteries.

In the peritoneum free blood was present over the surface of the intestines and filling the pelvis. The lesser sac was full of partially clotted blood, and the layers of the transverse mesocolon and the appendices epiploicæ in this region were infiltrated with blood which had also penetrated into the interstitial tissue of the pancreas. There was so much clotted blood that it was impossible to see whence it had come, and no aneurysm was found here. The other organs appeared to be normal macroscopically.

Microscopic examination of the cerebral arteries showed a characteristic medial defect in the fork of the first bifurcation of the right middle cerebral artery. In the angle between two branches of the mesenteric artery the circular muscle-fibres of the arterial wall were broken up into small bundles, separated by wide septa of fibrous tissue which formed more than half the thickness of the wall in this area. Also, at the exact point of bifurcation itself, the wall was considerably thinner than on either side, and consisted entirely of connective tissue. In sections of the lungs and kidneys, defects similar to those illustrated in Fig. 4 were found at the points of branchings of the small arteries.

FIG. 3 (Case 1).—Photomicrograph of the muscle defect in the tunica media in the fork between two arteries, illustrated in Fig. 1. The intima has been torn across by the dissection.

DISCUSSION

These cases of associated intracranial and abdominal hæmorrhage have considerable pathological significance. Both the large splenic aneurysm in the first case and the intraperitoneal hæmorrhage in the second were associated with well-marked developmental defects in the walls of the arteries. In the first case, in the absence of any inflammatory or degenerative cause, it may be concluded that the aneurysm has arisen as a result of a defect such as has been described. This is further suggested by the multiple aneurysm formation on the cerebral arteries. If a congenital defect has determined the formation of such a large abdominal aneurysm as was present in this case, it is highly probable that all stages of aneurysmal change from minute dilatations which would be very difficult to find post mortem to single or multiple large aneurysms may arise similarly.

The second case, in which an intraperitoneal hæmorrhage without an apparent cause was present in association with muscular defects of the arteries

and a cerebral aneurysm, lends strong support to this hypothesis.

The association of cerebral aneurysms with congenital muscular defects has been established by Forbus (1930). The occurrence of aneurysm formation in association with similar defects on the abdominal arteries leads to the conclusion that congenital aneurysm should be considered in the ætiology of those cases of unexplained massive intraperitoneal hæmorrhage which are encountered from time to time, as has already been suggested by Bruce (1937). When such a case comes to autopsy the cerebral arteries should be examined with care, as congenital

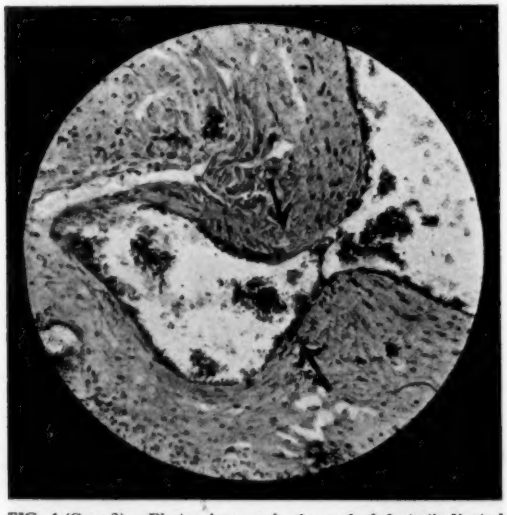

FIG. 4 (Case 2).—Photomicrograph of muscle defects (indicated by arrows) at the angle of branching in a small intrapulmonary artery.

aneurysm formation in these vessels would strongly suggest a similar cause for the abdominal hæmorrhage.

From a review of the published work it is evident that these aneurysms are much more frequently observed on the intracranial arteries than elsewhere. This fact is difficult to explain because in both the cerebral and the abdominal vessels developmental defects in the arterial walls are relatively common. It is possible that this greater incidence of congenital aneurysms on the cerebral vessels may be related to the differences in histological structure that have been observed between these two arterial systems. In the cerebral arteries the adventitia is deficient in elastic tissue, and is not so well developed as in abdominal vessels of comparable calibre. Further, in the cerebral arteries, the internal elastic lamina tends to become divided into several layers in later life. As the defects observed in the muscle wall appear to be identical throughout the arterial system, some further factor, such as these structural differences, must predispose to the more frequent aneurysm formation in the cerebral arteries.

The cases are also interesting from the clinical point of view. The combination of congenital cerebral aneurysm giving rise to symptoms, and an abdominal aneurysm or muscle defect from which a fatal intraperitoneal hæmorrhage took place, must be a very rare occurrence. The clinical picture resulting from the cerebral aneurysms illustrates again the variability of the symptoms arising from this condition and the difficulty of its diagnosis. The correct diagnosis in the first case had not been established before death. It should be noted that in this case the largest aneurysm arose from the left common carotid artery, while the severe visual failure was present in the right eye. This would have made diagnosis by arteriography or exploratory craniotomy more difficult had these procedures been undertaken. The abdominal aneurysm, on the other hand, had given rise to no symptoms before its fatal rupture. It is not unusual, however, for large aneurysms in this situation to produce variable abdominal symptoms, sometimes suggesting duodenal or gastric ulcer, for long periods before the diagnosis is made. It is interesting also to note that in the second case there were massive hæmorrhages, which must have been nearly simultaneous, into both the cranium and the abdomen, each of which appeared sufficient to cause death.

SUMMARY

Two cases of congenital cerebral aneurysms together with an intra-abdominal hæmorrhage have been described.

The hæmorrhage was associated in both cases with developmental defects in the tunica media of the mesenteric arteries.

In one case a large ruptured splenic aneurysm was present, and in the other, no definite bleeding point could be found. The clinical and pathological features of the cases have been discussed.

We wish to thank Dr. Douglas McAlpine for permission to publish the first case. We are indebted to Dr. Greenfield for his advice and criticism. We also thank Prof. R. J. V. Pulvertaft for permission to take the photomicrographs.

REFERENCES

Bruce, J. (1937) *Lancet*, **1**, 1451.
Collier, J. (1922) Price's Textbook of the Practice of Medicine, IED., Oxford, p. 1351.
Eppinger, A. (1887) *Arch. klin. Chir.* **35**, Suppl. pt. 3, p. 42.
Fearnsides, E. G. (1916) *Brain*, **39**, 224.
Forbus, W. D. (1930) *Bull. Johns Hopk. Hosp.* **47**, 239.
Schuster, N. H. (1937) *J. Path. Bact.* **44**, 29.
Symonds, C. P. (1923) *Guy's Hosp. Rep.* **73**, 139.
— (1924) *Quart. J. Med.* **18**, 93.

EXAMINATION OF THE BONE-MARROW BY STERNAL PUNCTURE

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ALTHOUGH Neumann recognised the bone-marrow as the site of blood regeneration and the origin of a number of its disturbances in 1868, autopsy formed the only source of material for the study of this organ until the opening of the century, when attention was drawn to its examination during life and Ghedini (1908) trephined and scraped the tibia of patients for diagnosis. The examination of flat bones came first into prominence when Donovan (1909) found leishmania more abundant in a rib than in the head of the tibia, and Seyfarth (1922) abandoned puncturing the spleen or liver for the diagnosis of malaria and kala-azar in favour of the sternum because it was safe and the marrow was always active. This method was soon adopted by a few hæmatologists, but the customary use of a trephine prevented its universal application. The examination of the bone-marrow by mere aspiration of its contents, which was devised by Pianese as early as 1903 and neglected because it did not supply material for the study of sections, was revived, in a modified form, for hæmatological work by Arinkin (1929). On account of its simplicity

this method has gained extensive use and has become almost a routine examination in some clinics.

METHOD

A special hard-steel needle,* similar to an ordinary lumbar puncture needle cut short, is fitted with a movable shield which can be fixed at any required distance to limit the depth of penetration. The skin is cleaned and some novocain injected subcutaneously and over the periosteum on the middle of the sternum opposite the third costal space. The shield is fixed at 0·5–1·5 cm. from the point of the needle according to the age of the patient, the thickness of the sternum, and the amount of subcutaneous fat. The needle with the stilette in place is inserted carefully. Some pressure is usually required and the operator can feel when he has pierced the superficial lamella of the sternum. The stilette is now removed and by means of a 2 c.cm. syringe about 0·2 c.cm. of blood is aspirated, during which the patient experiences some discomfort or even actual pain. Films are prepared, dried quickly, and stained by the May-Grunwald-Giemsa method. The remainder is oxalated and the total cell count determined. A collodion dressing is applied to the site of the puncture which does not bleed and heals very quickly. The manubrium and the lower third of the sternum can also be punctured, but both are better avoided. The former may have only a thin layer of spongy marrow in the middle line (Arinkin 1929), and in the latter a longitudinal oval split is present in about 20 per cent. of cases (Passler, quoted by Segerdahl 1935).

Average Differential Picture of Bone-marrow

Type of cell.	Segerdahl* 1935 (adult males).	Arinkin 1929.	Holmes and Broun 1933.	Schilling and Benzler 1915.
Myeloblast	1·32	1·7	2·4	..
Pre-myelocyte	1·35	1·9	..	..
Neutrophil myelocyte	15·0	6·55	7·0	17·39
Eosinophil myelocyte	1·37	0·65	..	..
Neutrophil metamyelocyte	15·69	2·4	6·7	18·98
Neutrophil, band form	10·48	..	14·0	0·11
„ segmented form	20·86	48·0	17·4	4·85
Eosinophil	1·44	2·31	1·0	2·91
Basophil	0·14	0·35	0·3	..
Erythroblast or normoblast	12·88	10·85	6·9	37·47
Pre-erythroblast	..	1·85	..	(18·96 not recognised.)
Megaloblast	..	..	5·2	
Megakaryocyte	0·029	3·35	..	
Reticular cell	0·031	..	..	
Monocytes	2·27	5·7	9·0	
Lymphocytes	16·76	11·9	24·9	
Plasma cells	0·39	0·6	..	
Primitive cells	..	..	2·6	

* Adult males, adult females, and old people were examined. Results for the first two are almost equal. Third group shows slight diminution of immature granulocytes and some increase in lymphocytes.

THE NORMAL PICTURE

One must be well acquainted with the contents of normal bone-marrow for the proper interpretation of the puncture findings in pathological cases. Many workers have tried to work out the normal differential picture of the marrow by various methods (see Table) and the different terminologies are often confusing. For the purpose of this paper we have accepted the average differential picture worked out by the same method by Segerdahl (1935) from an exhaustive study of 110 normal cases.

The total count of nucleated cells varies a great deal in different punctures of the same person and in the first and second portion of the same specimen. They vary from 10,000 to 250,000 with an average of 75,000 per c.mm. in normal people (Segerdahl 1935, Merwe 1936). Our total counts were usually below this average in what appeared to be a normal or even hyperplastic marrow, but it must be noted that we used the last and not the first few drops for these counts. Marrow cells readily adhere to one another and to the walls of the syringe. For this reason the periphery and tail of the film are more carefully examined where marrow cells or islets of them are most abundant. A total count may be a rough guide to the general cellularity of the marrow which can also be seen in the smear but the differential count is more significant. The leucocyte-erythroblast ratio (average 6 : 1), the percentage of myelocytes, myeloblasts, and erythroblasts, and the type of the latter are the most important details.

DIAGNOSTIC VALUE

The whole of our material (53 cases) was pathological and consisted mainly of pernicious anæmia, hypochromic anæmia, and aplastic anæmia. In addition a few cases of leukosis, acholuric jaundice, polycythæmia rubra vera, agranulocytosis, purpura hæmorrhagica, adenopathies, and other miscellaneous diseases were examined. Only once was the puncture unsuccessful, and this was a case of Paget's disease. No subcutaneous or subperiosteal hæmorrhage (as reported by Arinkin 1929) occurred even in cases of hæmorrhagic diathesis. A few examples may serve to illustrate the diagnostic value of sternal puncture in disease of the hæmopoietic system.

CASE 1.—A woman, aged 21, complained of weakness and pallor. Pallor and darkening of the skin were noticed one year ago. In the last six months pallor increased, the skin became yellow, and the patient began to complain of dyspnœa, palpitations, stabbing pain behind the sternum on exertion, occasional cramps in the legs, and pins and needles in the arms. Weakness was progressive. During the last month she used to vomit in the morning and she became unsteady on her feet. Some bleeding occurred from the gums but there was no bruising anywhere. Appetite was poor, tongue not sore, and periods regular but heavy. She lost about 2½ st. in the last year. There was no family history of importance.

On *examination* she was pale with an olive-coloured skin and some pigment around the eyes, neck, and in the axillæ and abdominal wall. Tongue was flabby but surface not smooth. Some slightly enlarged glands were felt in the axilla. A systolic murmur was heard at base of heart, otherwise no abnormality in the chest was detected; blood pressure 110/60 mm. Hg. Liver and spleen were not palpable, but there was some increase of splenic dullness. There was no abnormality in urine or central nervous system.

Special investigations.—The tourniquet test was negative. There was achlorhydria after histamine. Wassermann reaction negative. van den Bergh: direct, delayed reaction in 10 min.; indirect, 2·4 units of bilirubin. Blood examination: hæmoglobin, 44 per cent.; red cells, 1,730,000; colour-index, 1·3; white cells, 2800; platelets, 38,000 per c.mm.

Diagnosis.—With the exception of the age of the patient, this is almost a typical case of pernicious anæmia, but liver extract and duodenal powder were tried without any effect whatsoever, and careful examination of the blood film increased the suspicion about this diagnosis. The smear showed 14 per cent. nucleated erythrocytes, 8 of which were normoblasts and 6 were macro-megaloblastic in type. Anisocytosis and poikilocytosis were not as severe as in pernicious anæmia. The differential picture of the leucocytes was 12 polymorphs, 60 lymphocytes, and 28

* Various designs have been used. This one, devised by Dr. M. Salah (Cairo), is very handy and was made by Allen and Hanburys (London).

mononuclear cells per cent. Of the latter a large number were distinctly abnormal, and although a change in the character of monocytes is common in pernicious anæmia (Naegeli 1931) and in some other leucopenias, they were suspected of being myeloblasts; half of them gave an oxidase-positive reaction.

Sternal puncture gave 50,000 total count per c.mm. and the following picture:—

	Per cent.		Per cent.
Basophil ..	.. 0	Staff-nucleated ..	.. 3
Eosinophil ..	.. 0	Segmented polymorphs	6
Myeloblasts ..	.. 44	Lymphocytes ..	.. 23
Pre-myelocytes	.. 15	Monocytes ..	.. 7
Myelocyte ..	.. 1	Macro-megaloblasts	.. 4
Metamyelocyte	.. 1	Normoblasts ..	.. 10

This reveals the myeloblastic nature of the marrow and justifies the diagnosis of myeloblastic leukæmia.

The patient went steadily down hill with much fluctuation in the leucocyte count, and the day before she died there were 35,000 white cells per c.mm., of which many were myeloblasts. The post-mortem examination confirmed the diagnosis of myeloblastic leukæmia.

CASE 2.—A man, aged 53, was admitted on March 23rd, 1937, complaining of indigestion, pallor, and weakness. Previously he was a healthy man. Some years ago appendicectomy was performed because of indigestion, and two years ago he had attacks of biliary colic from which cholecystostomy with extraction of thirteen stones and later on cholecystectomy was performed. One year ago he had œdema of legs, and five months ago gastric influenza and was in bed for two weeks, after which he looked pale. He had injections of liver extract with some improvement but the œdema reappeared in the ankles and also in the scrotum. He suffered from acid eructations, fullness and flatulence after meals, and bright blood in motions, but hæmatemesis. He had never worked with lead.

On *examination* his skin and mucous membranes were pale. The tongue was normal and there was no dysphagia or glossitis and, apart from some tingling in the feet when walking about, nothing abnormal in the central nervous system was discovered. Some very small glands were palpable in both triangles in the neck and in the groin. The spleen was two fingers-breadth below the costal margin and hard. The liver was palpable (one or two fingers-breadth), smooth, and fairly hard. The blood pressure was 110/60 mm. Hg.

Special investigations.—The Wassermann reaction and occult blood tests were negative. Indirect van den Bergh reaction 0·4 units. Blood-urea 36 mg. per 100 c.cm. A lævulose-tolerance test gave values of 85, 129, 121 mg. blood-sugar per 100 c.cm. before, one and two hours after lævulose respectively. In the fractional test-meal free and total acid were absent except in a very small amount at the end. Blood count: hæmoglobin, 43 per cent.; red cells, 2,580,000; colour-index, 0·86; reticulocytes, 2·6 per cent.; white cells, 3800.

Diagnosis.—In view of the history of biliary infection, the achlorhydria, and the impaired lævulose tolerance, splenic anæmia seemed to be the most probable clinical diagnosis. Suspicion as to the true nature of the case was aroused, however, by the differential picture which showed:

	Per cent.		Per cent.
Basophil ..	.. 1	Lymphocytes ..	.. 17
Eosinophil ..	.. 1	Monocytes ..	.. 2
Staff-nucleated	.. 3	Abnormal cells ..	.. 74
Segmented cells	.. 2		

The abnormal cells, which were of medium or large size and had primitive nuclei and occasional nucleoli, were suspected of being myeloblasts. Moreover, the presence of many broken or basket cells (as much as 34 per cent.) in the film was significant.

Sternal puncture showed:

	Per cent.		Per cent.
Basophil ..	.. 0	Staff-nucleated ..	.. 2
Eosinophil ..	.. 0	Segmented polymorph	.. 0
Myeloblasts ..	.. 75	Lymphocyte ..	.. 1
Pre-myelocyte	.. 0	Monocyte ..	.. 0
Myelocyte ..	.. 1	Erythroblasts ..	.. 21
Metamyelocyte	.. 0		

and this myeloblastic marrow seemed to confirm the diagnosis of myeloblastic leukæmia.

The patient was treated by massive blood transfusions and was temporarily much improved. On Oct. 13th, 1937, there was no change in the physical signs, and the blood count was: hæmoglobin 59 per cent., red cells 3,200,000, white cells 2800 (neutrophil segmented 19 per cent., lymphocytes 53 per cent., promonocytes 2 per cent., monocytes 26 per cent.). The abnormal cells which had been noted before suggested very strongly a relationship to the monocyte rather than the myeloid series. They were not the typical monocytes of peripheral blood but resembled histiocytes, and the case must probably be regarded as an aleukæmic monocytic leukæmia.

STUDY OF HÆMOPOIETIC DISEASE

Apart from its diagnostic value, puncture of the bone-marrow commends itself for the study of this organ in all diseases of the hæmopoietic system.

In a group of *aplastic anæmias with hyperchromia*, which can easily be confused with pernicious anæmia and corresponds with Wilkinson's description of achrestic anæmia, the puncture demonstrates a hyperplastic marrow which is macroblastic in contrast to the megaloblastic marrow characteristic of pernicious anæmia. (The findings will be discussed in detail in a later communication.)

In *idiopathic hypochromic anæmia*, the essential points observed were normal or active leucopoiesis almost in all and frequent hyperplasia of the erythron (four out of six cases). This hyperplasia (average 25 per cent. nucleated red cells) was in the main normoblastic with the occasional presence of a few macroblasts. Iron therapy seems to stimulate hyperplasia in cases in which it is absent before treatment. In one case, after a fortnight's treatment, the total count in the puncture increased from 25,000 to 81,000 per c.mm., and the percentage of nucleated red cells from 4 to 35. The marked normoblastic hyperplasia of the bone-marrow so characteristic of acholuric jaundice was demonstrated in two cases in which the number of nucleated erythrocytes was 42 and 58·2 per cent.

In *agranulocytosis*, immature white cells need not be absent from the marrow in all cases. In two cases, indeed, they were present in excess. The stage at which development was blocked and the return of maturation under successful treatment could be easily followed (Witts and Gupta 1936). The same paradox was found in *purpura hæmorrhagica*. Of four cases, all young females, with a positive tourniquet test and a prolonged bleeding time, two had a platelet count below 30,000 per c.mm., and no megakaryocytes were found in the bone-marrow smears; the other two were of the familial type with platelet counts of 40,000 and 154,000 respectively on admission which fluctuated considerably and they showed an increased number of megakaryocytes in the smears. The pathological changes in these cells, which were described by Frank (1925) and reported by Stein and Hartmann (1926) and Arinkin (1929) in the examination of bone-marrow punctures, could not be definitely demonstrated. Apart from the increase or decrease in the number of these cells, no abnormality was noted. An active regeneration of the bone-marrow was present in one case which showed a secondary anæmia at the same time.

DISCUSSION

There are many advantages in this method of examining the bone-marrow. Its simplicity especially commends itself. There is no permanent injury to the skin or bone, and, with proper care, no complication whatsoever. Unlike trephining it can be repeated frequently on the same individual. The

absence of histological sections is not a disadvantage. Owing to the difficulty of staining sections it may be impossible to distinguish between a myeloblast, a macroblast, and a megaloblast, and especially between a lymphocyte and a normoblast. This was partly responsible for the confusion of the identity of many marrow cells in the literature. It was perhaps this difficulty which let the study of the bone-marrow lag behind the other branches of special pathology. On the other hand, the arrangement of cells to one another and to vascular and other structures can be studied only in a section preparation. This is essential in other organs but not so important in the bone-marrow. Apart from the study of the genesis of cells, it is the quality rather than the distribution that counts. A normoblastic, megaloblastic, myelocytic, or myeloblastic marrow derives this distinction from the predominance of the special cell concerned irrespective of its order of arrangement. The fine histology of the marrow cells in the smears is demonstrated by a staining technique identical with that used in the study of the blood, and the blood-cells can easily be traced to mother cells and transitional forms in the marrow. Moreover it is important to note that the results of a controlled study of sections and puncture smears always run parallel (Arinkin 1929). Megakaryocytes are relatively few in the marrow and they show a characteristic focal arrangement. Morphological landmarks of maturity on their part are less distinct, and because of their enormous size they hardly spread evenly in a film. This makes their identification easy and interpretation difficult. A few are encountered irregularly in a puncture but their proper exploration seems undoubtedly to be more satisfactory in a section.

A puncture explores a very limited area of the marrow and consequently the nature of any nodal lesion—e.g., carcinomatosis or lymphogranulomatosis—may not be betrayed. The essential diseases of the hæmopoietic system are generally diffuse, and hyperplasia or hypoplasia of bone-marrow, in man as well as in experimental animals, is already diffuse in the flat bones by the time it starts in a nodular form in the long bones. Anatomically as well as physiologically the red marrow is, so to speak, a central marrow. The credit of drawing the attention of hæmatologists to this fact must be given to the parasitologists. Hyperplasia is always present in the marrow of the flat bones in idiopathic hypochromic anæmia although that of the long bones may be fatty (Wintrobe and Beebe 1933).

Changes of morbid physiology, too, start in the centre and gradually overflow to the periphery, and the order of events is reversed in retrogression. Besides everyday experience in the post-mortem room, this was classically illustrated during life in the remissions and relapses of pernicious anæmia (Zadek 1921, Peabody 1927). It is this peculiarity that, apart from technical difficulty, is the main advantage of puncturing the sternum instead of the tibia or femur as practised by earlier workers. The peculiar vascular arrangement of the bone-marrow allows many of its formed elements to be aspirated in the puncture. Narrow arteries open into wide veins which in turn expand into sinuses where adhesive immature cells reach their maturity. Moreover, in an active marrow, intra- and extra-vascular hæmopoiesis can no longer be recognised, and the mother cells of both leucocytes and erythrocytes are thoroughly mixed together. In a puncture, these cells come out mixed with blood, and it is by the routine comparison of smears of that material and peripheral blood that valuable information is gained.

Puncture of the bone-marrow is performed to clinch a diagnosis or to study the marrow in a particular disease. It has been recommended for diagnosis in various forms of anæmia, adenopathy, and leucosis. Careful clinical examination together with other laboratory data enables an easy differentiation of most of them and, since liver has been introduced for the treatment of pernicious anæmia, the therapeutic test has replaced almost any other test in the hands of the practitioner. Nevertheless, in cases of pernicious anæmia where infection or other complication is present, the blood picture may not be altogether clear and the response to treatment may be inhibited. In general practice aleukæmic leukosis (aleukæmic leukæmia) and aplastic anæmia remain the most difficult types of anæmia for diagnosis, and in these diseases puncture is of the greatest help. A diagnosis of idiopathic aplastic anæmia is reached by exclusion. The two cases recorded show that an aleukæmic myelosis can present itself with either a hyper- or a hypo-chromic anæmia which closely resembles pernicious anæmia or splenic anæmia and careful attention to the blood picture is often rewarded. In spite of the leucopenia primitive cells find their way into the circulation. In this form of myelosis small or large myeloblasts may be present. The oxidase stain is essential to avoid their confusion with lymphocytes, which are always oxidase negative, or with monocytes, which sometimes contain a few oxidase-positive granules, though in my experience never to the same extent as myeloblasts. In this respect the presence of oxidase-positive granules in the small as well as large cells is very significant. Confirmation of such diagnosis, however, rests with the result of the puncture, which on account of its simplicity may well dispense with more tedious laboratory methods.

For general study of the bone-marrow in diseases of the hæmopoietic system, the method has proved most valuable in my hands as well as others (Salah 1934, Rohr 1936), and has confirmed what other workers had found by more elaborate means. It shows clearly what is taking place in the marrow, and it demonstrates that the diminution or disappearance of one or more of the formed elements in the blood stream may be due to a disturbance of the function rather than of the histology of the bone-marrow. The block of maturation has been traced to its causative factor in pernicious anæmia, and similar causes may be found for other diseases such as agranulocytosis, purpura hæmorrhagica, and aplastic anæmia in the future. The presence in abundance of mother cells in the bone-marrow in spite of their suspended maturation may suggest a better prognosis in a special case than their complete absence.

SUMMARY

1. The method of examination of the bone-marrow by simple aspiration of its contents from the sternum is described. Its simplicity should encourage its use in all diseases of the hæmopoietic system.

2. The diagnostic value of sternal puncture in aleukæmic leucosis and aplastic anæmia is discussed, and the importance of careful examination of the peripheral blood is further emphasised. It appears that apart from parasitic diseases, the diagnostic value of sternal puncture is limited and is rather exaggerated by some workers.

3. Sternal puncture is of most value in the study of the morbid anatomy and physiology of the blood-forming organs and the effects of treatment. Many of the apparent discrepancies between blood pictures

and marrow pictures that puzzled previous observers are now known to be essential features of the disease process and have led to better understanding of ætiology and treatment.

I wish to express my sincere thanks to Prof. L. J. Witts for his continual help and encouragement and for his permission to use this material and to publish these cases.

REFERENCES

Arinkin, M. S. (1929) *Folia hæmat., Lpz.* **38**, 235.
Donovan, C. (1909) *Trans. Bombay med. Congr.* p. 159.
Frank, E. (1915) *Berl. klin. Wschr.* **18** and **19**.
— (1925) Handbuch der Krankheiten des Bluts und Blutbild. Organe, vol. ii.
Ghedini, G. (1908) *Clin. med. ital.* **47**, 724.
— (1910) *Wien. klin. Wschr.* **23**, 1840.
Holmes, W. F., and Broun, G. O. (1933) *Proc. Soc. exp. Biol., N.Y.* **30**, 1306.
Merwe, C. F. (1936) *Folia hæmat., Lpz.* **55**, 109.
Naegeli, O. (1931) Blutkrankheiten und Blutdiagnostik, Berlin.
Neumann, E. (1868) *Zbl. med. Wiss.* **6**, 689.
Peabody, F. W. (1927) *Amer. J. Path.* **3**, 179.
Pianese (1903) quoted by Caronia, G. (1922) *Pediatria*, **30**, 607.
Rohr, K. (1936) *Folia hæmat., Lpz.* **55**, 305.
Salah, M. (1934) *J. Egypt. med. Ass.* **17**, 10.
Schilling, V., and Benzler, J. (1915) cited by Schilling, V. (1925) *Dtsch. med. Wschr.* **51**, 344.
Segerdahl, E. (1935) *Acta med. scand.*, Suppl. 64.
Seyfarth, C. (1922) *Arch. Schiffs- u. Tropenhyg.* **26**, 337.
Stein, R., and Hartmann, E. (1926) *Z. klin. Med.* **104**, 490.
Tempka, T., and Braun, B. (1932) *Folia hæmat., Lpz.* **48**, 355.
Wilkinson, J. F., and Israels, M. C. S. (1935) *Brit. med. J.* **1**, 139.
Wintrobe, M. M., and Beebe, R. T. (1933) *Medicine, Baltimore*, **12**, 187.
Witts, L. J. (1930) *Guy's Hosp. Rep.* **80**, 253.
— (1936) *Proc. R. Soc. Med.* **29**, 671.
— and Gupta, C. R. D. (1936) *Brit. med. J.* **1**, 1197.
Zadek, I. (1921) *Schweiz. med. Wschr.* **51**, 1087.
— (1922) *Dtsch. med. Wschr.* **48**, 285.
Zanaty, A. F. (1934) *Virchows Arch.* **3**, 357.

MERTHIOLATE IN THE TREATMENT OF TUBERCULOSIS

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MERTHIOLATE, the sodium salt of ethyl mercurithiosalicylic acid, has already been tried in the treatment of pulmonary tuberculosis by Lambert (1936), who published a clinical paper giving only provisional evidence that the drug was perhaps of some use. The Therapeutic Trials Committee of the Medical Research Council accordingly invited me to undertake certain tests on the value of this substance on a series of cases to be selected for the purpose, without previous specific treatment.

TESTS IN ANIMALS

As a preliminary certain tests in animals were carried out.

It was decided to try the effect of growing out tubercle bacilli in Besredka's fluid egg medium (1921) to which, in different flasks, varying strengths of merthiolate had been added so as to find out the germicidal effect.

Fourteen Roux flasks were prepared, each containing an accurately measured volume of 25 c.cm. of Besredka's medium, and were tested for sterility by placing at 37° C. for 24 hours. These were divided into two sets of 7 flasks each and were treated with an amount of merthiolate varying in dilution from 1 in 100 to 1 in 10 million of the medium in each series, one flask in each series being left free from merthiolate. All 14 flasks were then "infected" by the addition of 0·5 mg. of human tubercle bacilli. All were then replaced in the incubator at 37° C.

Tests in vitro.—The flasks of Series 1 were subcultured 24 and 48 hours after seeding. The flasks of Series 2 were left for three weeks. From both, 0·1 c.cm. was removed on the day of subculture and cultivated on Jensen's egg medium. The results are given in the Table. They show that all bacilli are killed in three weeks in dilutions up to 1 in 100,000.

Intraperitoneal inoculations into guinea-pigs were given, 1 c.cm. of each flask 24 hours after seeding, and 0·5 c.cm. of each—as the dose of 1 c.cm. had caused some trouble—after three weeks. The guinea-pigs inoculated with 1 c.cm. of the mixtures after 24 hours all died; the first of merthiolate poisoning and the remainder either of or with tuberculosis. Those inoculated with the mixtures after three weeks proved free from any trace of tuberculosis except the guinea-pig to whom 1 part in a million had been given, and from that animal a minute quantity of tubercle was isolated from the spleen. The recipient of 1 in 10 million unfortunately died of sepsis and so could not be adequately examined.

Table showing Results of Subcultures from Besredka Fluid Medium Cultures containing Merthiolate

Merthiolate strength (per cent.).	0·1 c.cm. subculture on Jensen's egg medium.		
	Series 1 at 24 hours.	Series 1 at 48 hours.	Series 2 at 22 days.
1	..	..	..
1/10	..	..	..
1/100	+ + +	+	..
1/1,000	+ + +	+ +	..
1/10,000	+ + +	+ + +	*
1/100,000	+ + +	+ + +	+ + +

Control broth = + + + +
Number of plus signs indicate degree of growth.
* The culture was negative, but a guinea-pig inoculated with the same amount showed tuberculosis of the spleen.

Further tests on the action of tubercle in the blood in rabbits treated with merthiolate were also tried.

They received a dose intravenously the first 5 minutes, the second 2 hours, and the third 24 hours after the inoculation of a 0·5 mg. culture of bovine bacilli intravenously, while a control animal received nothing but the tubercle bacilli. The animals all died of tubercle, as was to be expected in view of the strength of merthiolate found necessary to kill off bacilli in 24 hours.

An investigation of the action of merthiolate in clots was of some interest, showing that, by Wright's method (1924), the clots were sterilised by 1 in 100 and 1 in 1000 but that higher dilutions were ineffective.

CLINICAL TESTS

A freshly prepared 1 per cent. solution was made up and handed to the medical superintendents of three tuberculosis hospitals—at Cefn Mably, Sully, and Craig y Nos—for use in the cases selected for tréatment. The directions were that the following doses were to be given intravenously every second day so that the course should last a fortnight: 2 c.cm., 3 c.cm., 4 c.cm., and 5 c.cm. for each of the final four doses. The urine was tested every day for albumin. The patients were kept quiet on the days of administration but were not necessarily confined to bed unless this had been ordered for other reasons. In all 17 patients were picked out as suitable for treatment, but two were subsequently rejected.

No complaints were made of immediate sensations of nausea or shock. One patient tended to cough a little after his treatment but this may have been accidental. The patients rather liked the treatment, and there would have been no difficulty in the giving of a second course if this had appeared necessary. Careful assessment of the cases, carried out on a sufficient number of occasions, before, during, and after the merthiolate, however, failed to demonstrate any pronounced change in the patients treated and so they were not recommended for a further course. They remained approximately in the same condition as before.

TREATMENT OF SINUSES

Tuberculous sinuses were treated with merthiolate at Glan Ely Hospital, and the tests were not such as to render the sinuses appreciably better. Through the kindness of Dr. A. Brownlee and his senior assistant, Dr. I. A. Williams, I was enabled to carry out tests on 11 patients, Dr. Enid M. Williams taking cultures at the same time. In none of the cases was there any improvement, and the cultures, seeded by Dr. Enid Williams, showed no change after treatment.

CONCLUSIONS

1. So far as our clinical tests go, merthiolate in safe doses is without significant effect.

2. Used for the irrigation of chronic tuberculous sinuses in a strength of 1/1000, it fails to clear up the condition after three weeks' trial, a finding which suggests that the treatment is ineffectual.

3. In Besredka's medium there is a slow but sure sterilisation of the culture, a bactericidal or perhaps a bacteriostatic effect, all tubercle bacilli being killed off in three weeks in dilutions up to 1 in 100,000. This sterilisation of the culture is perhaps of importance, and it is remarkable that it takes place even in the presence of egg proteid.

4. In water its action is rapid and efficient, as found by Douglas and Hartley (1934), and as shown by my own confirmatory experiments.

5. In Wright's capillary blood clots its action on tubercle bacilli is restricted to a dilution of 1/1000.

REFERENCES

Besredka, A. (1921) *Ann. Inst. Pasteur*, **55**, 291.
Douglas, R. S., and Hartley, P. (1934) *Tubercle, Lond.* **16**, 97.
Lambert, D. P. (1936) *Lancet*, **1**, 1176.
Wright, A. E. (1924) *Ibid*, **1**, 210.

Clinical and Laboratory Notes

PEPTIC ULCER OF MECKEL'S DIVERTICULUM

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MECKEL'S diverticulum is a remnant of the vitelline duct and is found in about 2 per cent. of the population. In the embryo, at the time of separation of the duct, its entodermal lining has the same power of development as the intestinal entoderm. If occlusion of the duct fails to take place, differentiation of the lining may follow exactly as in the intestinal entoderm. It is therefore not surprising to find epithelial heterotopia in Meckel's diverticulum. Gastric mucosa has often been recorded and occasionally pancreatic tissue has been found (Taylor 1927). Should gastric mucosa occur peptic ulceration may follow. Perforation of a peptic ulcer of Meckel's diverticulum was first described by Deetz in 1907, and since then many cases of peptic ulcer of the diverticulum have been reported, mainly in Germany and America. These have lately been reviewed by Johnston and Renner (1934) and Cobb (1936). The condition still appears to be so little recognised in this country that publication of a further case is warranted.

CASE REPORT

A boy, aged 13, was admitted to St. Thomas's Hospital on May 25th, 1936, with a history of profuse rectal hæmorrhage three hours before admission. For the previous three days he had had vague abdominal pain referred to the umbilicus.

He presented the signs of recent acute hæmorrhage, with pale mucous membranes, sweating, restlessness, a pulse-rate of 120, and a temperature of 98° F. There was diffuse abdominal tenderness and rectal examination showed the presence of altered blood. The red cell count was 2,480,000 per c.mm., with hæmoglobin 40 per cent. and colour-index 0·81. A tentative diagnosis of a bleeding duodenal ulcer was made and the patient was given morphia. Three days later red blood was passed per rectum and the red cell count on the next day had fallen to 2,060,000, with Hb. 33 per cent. and C.I. 0·82. He was thereupon transfused with 15 oz. of blood from a suitable donor. Though melæna persisted for several days there was no indication of fresh bleeding. He was given a Meulengracht's diet and ferri et ammon. cit. gr. 90 o.d. Proctoscopy, a complete barium meal, and a barium enema showed no abnormality. His condition gradually improved and on discharge he showed 72 per cent. of hæmoglobin. He attended the out-patient department and appeared in good health.

In November, 1936, he was readmitted with a similar history of acute rectal bleeding. Once again it was clear that he had had a severe hæmorrhage. He again had vague abdominal pain referred to the umbilicus and there was dark blood on the rectal glove. The pulse-rate was 160, the temperature 97·5°, and the hæmoglobin 40 per cent. He was given morphia. During the next 24 hours the abdominal pain became more severe and generalised and was accompanied by widespread rigidity suggesting a perforation of an abdominal viscus. His pulse rose steadily from 120 to 150 and his temperature to 100°; a leucocyte count showed 12,000 cells per c.mm. A diagnosis of acute spreading peritonitis was made and a transfusion of 20 oz. was given prior to laparotomy.

Operation.—Anæsthesia was induced with nitrous oxide followed by ether and oxygen. A low right paramedian incision was made and a large amount of purulent fluid and altered blood was found in the peritoneal cavity. There was a perforated ulcer at the base of a short Meckel's diverticulum situated on the antimesenteric border of the ileum some 2½ ft. from the cæcum. The diverticulum, including the ulcer, was excised and the bowel sutured transversely. An intraperitoneal drain was inserted through a stab incision above the pubes and the abdominal wound closed with a drain down to the rectus sheath.

Post-operative course.—The patient suffered from distension due to peritonitis and the pulse-rate did not fall below 120 for the next five days. A residual pelvic abscess formed and discharged through the suprapubic drain-hole, but he ultimately made a good recovery and was discharged from hospital 4½ weeks after operation. He has since remained perfectly well.

The excised diverticulum was an inch in length and was surrounded by a cuff of ileum. The mucous membrane of the diverticulum was thick and suggestive of gastric mucosa and was sharply delimited from the ileal mucous membrane. At the junction of the two mucosæ was an ulcer, a third of an inch in diameter and in appearance similar to a peptic ulcer at the stoma of a gastro-enterostomy. The floor had perforated into the peritoneal cavity but no large eroded vessel was seen.

Microscopy (Dr. D. C. L. Derry).—The section described below was taken through the junction of the ileal mucosa and the mucosa of the diverticulum. The ileal mucosa is normal in appearance, showing villi lined by columnar epithelium, interspersed with goblet cells, and the typical crypts of Lieberkuhn; the lamina propria contains a normal number of connective tissue cells, such as small lymphocytes, plasma cells, and eosinophils, with lymphoid patches. This mucosa passes abruptly into the mucosa lining the diverticulum which is identical with gastric mucosa, consisting of tall columnar epithelium lining gastric pits, and typical gastric glands, containing the usual number of zymogenic and oxyntic cells; the lamina propria contains a normal number of connective tissue cells—e.g., small lymphocytes and eosinophils. There is

no evidence of inflammation. A few ectopic foci of gastric glands are present in the ileal mucosa, and vice versa. The muscularis mucosa is continuous below the mucosæ.

COMMENT

Cobb (1936) has collected 100 probable cases of peptic ulcer of Meckel's diverticulum. Gastric mucosa has been found in the diverticulum of 66 of these; the remainder were not examined histologically. Of the 66 cases, 9 were in females. Perforation of peptic ulcer had occurred in 32 of these proved cases; only 3 were in females. This preponderance in males appears to be highly significant. When it is considered that the condition usually occurs in childhood at a time when general living conditions and diet are very similar for the two sexes, the female seems to enjoy an especial freedom from ulceration depending solely on her sex. However no control observations are available. We therefore cannot infer a relative immunity of the female to this type of peptic ulceration since Meckel's diverticulum is twice as common in males, and we can find no figures to show the relative incidence of gastric mucosa in normal diverticula in the two sexes.

The commonest presenting signs of an ulcer of Meckel's diverticulum are severe rectal hæmorrhage or perforation. Of the 100 cases collected by Cobb, 71 had had hæmorrhage, 53 had perforated, 35 had had hæmorrhage followed by perforation, while in the remainder the ulcer was only found at operation or autopsy. The cases likely to be missed are those in which bleeding is the presenting sign and the condition should certainly be considered as a cause of rectal hæmorrhages especially in children. Even if an ulcer of Meckel's diverticulum is suspected it is difficult to demonstrate the diverticulum by radiography, though this has occasionally been done. Case (1926) appears to have been the first to demonstrate a diverticulum that was afterwards confirmed by operation. If an ulcer may reasonably be suspected from the history of repeated rectal hæmorrhages, and a complete physical and radiological examination is negative, we feel that it is justifiable to advise laparotomy in view of the risk of further hæmorrhages or perforation.

We are grateful to Prof. O. L. V. de Wesselow and Mr. C. Max Page for permission to publish this case.

REFERENCES

Case, J. T. (1926) *Acta radiol., Stockh.* **6**, 230.
Cobb, D. B. (1936) *Ann. Surg.* **103**, 747.
Deetz, E. (1907) *Dtsch. Z. Chir.* **88**, 482.
Johnston, L. B., and Renner, G. (1934) *Surg. Gynec. Obstet.* **54**, 198.
Taylor, A. L. (1927) *J. Path. Bact.* **30**, 415.

TYPHOID BACILLURIA TREATED WITH SULPHANILAMIDE

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The treatment of *Bacillus coli* pyelitis and bacilluria with *p*-aminobenzenesulphonamide (sulphanilamide) appears to be now well established (Kenny and others 1937) and my own results in a series of cases have been so good that I decided to try the drug in a case of typhoid bacilluria.

The patient, a seaman aged 65, was admitted to the Seamen's Hospital, Greenwich, on May 27th, 1937. His ship had been trading on the Spanish coast and whilst at Valencia four weeks before admission he developed (1) dizziness and weakness followed by a state of semi-consciousness; he was confined to bed for seven days, but then resumed duty; (2) frequent loose stools; dry tongue and mouth, and loss of taste; and (3) cough. There was no vomiting or rigors and no urinary symptoms.

On admission the temperature was 101° F., the pulse-rate 80, and the respirations 24. Dry tongue showing leucoplakia. Abdomen soft and not tender or distended. Bilateral inguinal hernia; mild bronchitis at both bases; spleen not palpable; no rash. On May 28th the Widal reaction was positive, 1/10–1/1280. A blood count showed 3000 white cells (polymorphs 63 per cent., lymphocytes 31 per cent., monocytes 5 per cent., and myelocytes 1 per cent.). Wassermann reaction positive (++).

By June 4th the temperature had begun to fall. The spleen was now palpable. Convalescence was uneventful until June 25th when the temperature rose to 100·2° F., with a pulse-rate of 92, and bronchitis at both bases. There was frequency and pain on micturition, tenderness in both loins and over bladder, and pus in the urine (+). Treatment was commenced with hexamine gr. 15 t.d.s. and acid sodium phosphate gr. 20 t.d.s. Four days later the urine contained pus (++) and gave a heavy growth of *B. typhosus*. On July 2nd all the symptoms were worse, with swinging temperature and pus in urine (++). The patient was given Mandelix (elixir of ammonium mandelate B.D.H.) 2 drachms t.d.s., ammon. chlor. gr. 30 t.d.s. being given for a few days in addition in order to ensure sufficient acidity of the urine. The urinary *p*H was 5·3 after four days and treatment with mandelix was continued for three weeks, till July 22nd. The patient's symptoms cleared up rapidly and the temperature became normal on July 8th, but urinary examination on the 17th showed pus (very heavy deposit) and *B. typhosus* in pure culture. The same organism was present in the urine on July 20th and 23rd but could not be found in the stools on the 20th, 21st, and 22nd.

In view of the persistence of typhoid bacilluria, after a week on hexamine and three weeks on ammonium mandelate, treatment with sulphanilamide was begun on July 22nd. The reaction of the urine was not adjusted, since the drug acts over a wide range of *p*H (5·2 to 6·8) in *B. coli* infection (Kenny). The dose was gr. 7½ b.d. by mouth, and in five days (on July 27th) no *B. typhosus* could be found in the urine. Treatment was discontinued next day, but a culture of urine contained *B. typhosus* on August 5th and sulphanilamide was again given, in the same daily dosage, for a fortnight. Cultures taken four times between August 10th and Sept. 26th grew no typhoid bacilli.

Transient bacilluria is common during convalescence from enteric fever. As a rule it is not associated with symptoms or with pyuria and the organisms disappear from the urine comparatively soon (Browning 1933). Moreover, both in temporary and permanent carriers, their excretion may be very intermittent: Garbat (1922), for instance, states that one specimen may be sterile though urine passed an hour before or after may contain numerous typhoid bacilli. Hence one must be especially careful when assessing the value of any particular drug in the treatment of typhoid bacilluria. No deductions can be drawn from a single case, but the sequence of events from July 22nd to August 10th was so striking that I place it on record in the hope that others with greater facilities may be encouraged to try sulphanilamide in typhoid bacilluria and pyelitis.

SUMMARY

(1) A case of typhoid pyelitis and bacilluria which failed to react to hexamine was treated for three weeks with ammonium mandelate but still showed a pure growth of *B. typhosus* in three separate urine cultures. (2) After five days' treatment with sulphanilamide culture was negative; but typhoid bacilluria returned when sulphanilamide treatment was discontinued. (3) The urine became sterile after four days' further treatment, and after a course of sulphanilamide

lasting fourteen days there was no recurrence of bacilluria.

I wish to express my thanks to my former chief, Dr. C. E. Sundell, senior physician to the Seamen's Hospital, for permission to publish this case and for many helpful suggestions.

REFERENCES

Browning, C. H. (1933) *Spec. Rep. Ser. med. Res. Coun., Lond.* No. 179.
Garbat, A. L. (1922) *Monogr. Rockefeller Inst. med. Res.* No. 16.
Kenny, M., Johnston, F. D., von Haebler, T., and Miles, A. A. (1937) *Lancet*, July 17th, p. 119.

RECURRENT FIBROIDS

BY BRYAN C. MURLESS, M.B. Camb., F.R.C.S. Edin., M.C.O.G.
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THOUGH a number of cases of fibroids recurring after subtotal hysterectomy have been described the condition still remains extremely rare, and the following case may be of interest.

A woman aged 46 was admitted for pain low down in her right iliac fossa. She had had 3 children, the youngest being 15. A subtotal hysterectomy had been performed 5 years 9 months previously for fibroids, and since this she had not menstruated.

Examination revealed a pelvic tumour, firm, tender, and fixed to the cervical stump. A diagnosis of ovarian neoplasm was made.

At operation a medium-sized fibroid was discovered and panhysterectomy performed. Great difficulty was experienced as the bladder, which almost completely covered the tumour, was firmly adherent to its anterior and upper surfaces, the tumour having grown up between the peritoneal and muscular coats of this viscus. During separation a hole was made in the bladder and repaired with fine catgut.

The specimen consisted of a mass measuring 5 by 4 in. and contained the stump of the uterus and two irregular fibroids growing from the supravaginal portion of the cervix. In the centre of one a small patch of red degeneration was found. The ovaries appeared normal. Microscopy showed no special feature in the pathology of the ovaries or the fibroid growths.

Most who have dealt with this condition have found the removal of these tumours difficult, due to their relations to the bladder and pelvic colon, and Fletcher reporting a case in 1935 stresses these points. Giles (1922) and Greenhill (1936) also report cases where technical difficulties were experienced.

Owing to the knowledge of the previous subtotal hysterectomy, correct pre-operative diagnosis seems to be rare. Like this case, those of the three writers quoted above were thought to be ovarian neoplasms till the abdomen was opened. It is well known that, judging clinically, cases of fibroids appear to differ in their rate of growth, depending no doubt upon their variations in blood-supply and also probably upon the concentration of the unknown endocrine influence causing their development.

A survey of such cases as these, however, provides excellent first-hand evidence of their minimum rate of enlargement. The fibroid reported by Fletcher had enlarged to 13 by 9 in. in 8 years; in Greenhill's case to 7¼ by 6 by 4 in. in 17 years. Reader (1924) reports a case of one that had attained the size of a billiards ball in 3 years. The tumour in my case measured 5 by 4 in. after 6 years. All reports of microscopy showed normal fibromyomatous tissue.

It is probable that the majority of recurrent fibroids develop from a seedling fibroid left in the supravaginal portion of the stump, but possibly some start as a fresh development a period of years after the subtotal operation. Such a theory will explain the apparent variation in rate of growth shown in the cases quoted.

My thanks are due to Mr. Leslie Williams by whose permission I treated this case.

REFERENCES

Fletcher, N. H. (1935) *Brit. med. J.* **1**, 300.
Giles, A. E. (1922) *Proc. R. Soc. Med.* **16**, 12.
Greenhill, J. P. (1936) *Amer. J. Obstet. Gynec.* **31**, 678.
Reader, F. (1924) *Ibid*, **7**, 173.

MEDICAL SOCIETIES

HUNTERIAN SOCIETY

A MEETING of this society was held on Oct. 18th. The president, Dr. DONALD C. NORRIS, F.R.C.S., occupied the chair, and gave an address on

Some Medical Problems in Accident Insurance

He said there were four main matters on which the doctor's advice was sought in accident cases: (1) the physical fitness of the applicant for employment or for various kinds of insurance; (2) the risks attaching to occupation or to industrial processes; (3) the effects of accidental injury; (4) prognosis in cases of disease or injury.

In estimating physical fitness it was necessary to have a standard, and this would vary with the object of the examination. A man might be a good risk for life assurance if he had no defect likely to shorten his life, yet a bad risk for accident insurance if he had bad sight or hearing. Moreover, he might be fit for work as a clerk but not as a blacksmith. Life assurance was far from being a mere gambling transaction. The real gambler—whose position was morally indefensible—was the man who was underinsured, who was faced with a risk which he could not avoid, and could not afford to meet if it should materialise, and yet made no proper provision for such a contingency.

In examining applicants for employment it was customary to pass only those who were free from major defect, and many firms accepted only "first-class lives," which might be hard on the rejected candidate. Much unemployment and invalidity could be avoided if workers were allotted only to tasks for which they were physically suited, and the examining medical officer should know much about the physical requirements in various industries. In a large factory in America it had been estimated of 7882 different jobs, only 949 needed men of strong physique; 3338 jobs required moderate strength, while 3595 were light enough to be done by women or boys. In some occupations cripples could earn full wages; it was regrettable that so few British employers would take on partially disabled men.

Medical advice was frequently sought as to the hazards associated with new industrial processes. Inhalation of certain kinds of dust might lead to disease, and there were elaborate regulations concerning silicosis; but it was disconcerting to learn, from the last annual report of the chief inspector of factories, that no trace of that disease was found in autopsies on 122 of a total of 189 fatal cases which had been certified as suffering from silicosis, and that the rest had only slight traces of the condition.

In examining cases of alleged injury full particulars of patients should be recorded, especially any past illnesses. It was exceptional for any disease to have a single cause; for example, osteo-arthritis might be due to any one or more of several factors, acting either alone or in combination, such as age, injury, infection, overstrain, endocrine disturbance, and exposure to cold or wet. Statistical evidence needed to be studied carefully before it could be applied to a particular case. The differential diagnosis of pain in the back had recently been complicated by recognition of a condition in which the soft, elastic centre of the intervertebral disc (the nucleus pulposus) broke through the dense fibro-cartilage surrounding it, and prolapsed, either into the bodies of the vertebræ or into the spinal canal, where it exerted compression on the spinal cord or nerves.

Perhaps no branch of medical work was so difficult as the estimation of the probable duration of incapacity after accidental injury, when such factors as the availability of proper treatment and the provision of suitable work if needed as a remedial agent had to be considered. That pending litigation was a potent cause of delay in resuming work did not imply that malingering was common; in the president's own experience it was rare. Only one case in fifty of claims to workmen's compensation reached the courts, but negotiations for settlement were sometimes needlessly prolonged, and the workman might then regard himself not as a sick man to be restored to efficiency as quickly as possible, but as an ordinary litigant who had acquired an interest in the fund from which he might expect to receive a share. It sometimes happened that a workman recovered from an injury sufficiently to be able to resume work, but the accident had set up some condition which was likely to lead to late complications, and hence to further disability. Claim to compensation for this might be barred by lapse of time, and in order to preserve his rights the workman might be allowed to file a "Declaration of Liability."

It was sometimes suggested that a doctor whose work was concerned largely with the assessment of claims might be unduly influenced by the supposed interests of the party to whom he sent his report; this danger tended to eliminate itself with increasing experience, as it soon became apparent that any departure from strict impartiality had a very damaging effect on the reputation of the doctor concerned, and was embarrassing to the employer or insurer dealing with the claim.

The practice of examining claimants disclosed, said the president, remarkably few attempts at fraud. When a claim was pursued to unjustifiable lengths that was more commonly due to an excess of zeal on the part of the patient's legal advisers than to his own cupidity.

ROYAL ACADEMY OF MEDICINE IN IRELAND

At a meeting of the section of surgery on Oct. 1st, with Mr. SETON PRINGLE in the chair, a discussion on

Curable Intracranial Lesions

was opened by Mr. A. A. MCCONNELL, the President. He pointed out that the presence of symptoms and signs suggesting a tumour of the brain were not to be taken to mean that the case was hopeless, for there were many patients in whom these symptoms were due to curable lesions. The curable conditions in general were derangements in the amount or circulation of the cerebro-spinal fluid, and tumours growing from the meninges, from certain cranial nerves, and from the pituitary body. Some types of hydrocephalus were cured simply by lumbar puncture, other types by short-circuiting operations, whilst others seemed to be permanently relieved by evacuation of cysts. Only some meningeal tumours were curable and operations for their removal might carry considerable risk. But no case presenting symptoms of intracranial disease should be regarded as hopeless until a complete examination had been made; moreover it was often impossible to tell the nature of the lesion without some physical method of diagnosis being employed, or even an operation performed.

Mr. C. J. MACAULEY thought it important to emphasise the comparative frequency of collections of blood in cases of traumatic origin. On one or two occasions he had removed a tuberculoma without knowing that it was one, and once at least complete recovery had followed post-operative deep X ray treatment.

Dr. H. LEE PARKER said that in the early days of brain surgery tumours were very large and the mortality very high. It was well to remember that the outlook was very often not as hopeless as one might think. Certain conditions, especially subdural hæmatoma, were very difficult to recognise, but once they were recognised they might be completely cured; very often they were bilateral and both sides had to be opened.

Mr. SETON PRINGLE said that Mr. McConnell had quoted many cases of very pleasant surprises, and he was sure it was necessary, in these cases, to have very close coöperation between surgeon and physician.—Mr. T. J. D. LANE asked if it was advisable to release suddenly the pressure caused by a collection of blood on the brain.—Mr. L. B. SOMERVILLE-LARGE referred to a case mentioned by Mr. McConnell, in which a child had a peculiar gait and ocular paralysis in one eye but no papillœdema.—Dr. R. H. MICKS suggested that the question of inflammatory hydrocephalus required reconsideration, especially since the discovery of Prontosil. This drug had recently been used in some cases in which the surgeon had been able to defer operation until the acute toxic symptoms had gone down. Personally, he did not look on toxic hydrocephalus as necessarily requiring operation.

BOROUGH GENERAL HOSPITAL, WARRINGTON.—The foundation-stone of an extension to this municipal hospital was laid recently by Alderman Marron. The extension includes the provision of a new nurses' home, additional ward accommodation, a receiving block, clinics, and a new operating theatre.

HACKNEY HOSPITAL, LONDON COUNTY COUNCIL.—On Oct. 15th at this hospital Mr. Herbert Morrison, leader of the London County Council, opened a new nurses' home which has cost over £97,000. It has accommodation for 265 sisters and nurses and is six storeys high. The bedrooms each contain a lavatory basin with hot and cold water and a built-in wardrobe cupboard. There are bathrooms, shampoo rooms, tea-making rooms, box-rooms, and small laundries for personal use by the nurses, a dining room, three recreation rooms, self-contained flats for the matron and the deputy matron, and private sitting rooms for the administrative sisters. A training centre for nurses, which includes a lecture room, demonstration room and a library, is also provided. Two electric passenger lifts serve all the floors and a flat roof over the greater part of the building affords facilities for sun-bathing and physical exercises. A large putting green and two full-size hard tennis courts are being provided for the use of the nursing staff.

REVIEWS AND NOTICES OF BOOKS

Tissue Reactions in Bone and Dentine

A Morphobiological Study of the Formation and Dissolving of Bone and Dentine. By AKE WILTON, M.D., Assistant Professor and Lecturer in Pathology at the Caroline Institute, Stockholm. London: Henry Kimpton. 1937. Pp. 194. 15*s*.

THERE is irony in the choice of a quotation from Sir James Goodhart for the conclusion of this essay, for in 1912 Goodhart chose as the title for the Harveian oration, "The Passing of Morbid Anatomy." In the succeeding years morbid anatomy has shown no signs of passing but actually, as this book shows, is becoming of increasing importance in the elucidation of disease.

It is true that morbid anatomy is approached from a different angle; no longer is there the need for gross descriptions of disease and happily the effects of the set-back associated with the advent of bacteriology are waning. The tendency now is to study the natural history of a disease, aided by ancillary methods such as experimental pathology and tissue culture, to attempt to explain the changes in terms of morphology, and so make clear the various causal factors which take a part in its evolution.

In this essay Prof. Wilton considers osteogenesis and osteolysis from the point of view of morphogenetic determination. He attributes the abnormality in certain bone diseases in part to the influence of certain factors whose nature he does not discuss. The "N" factor causes abnormally slow differentiation and decrease in growth of mesenchymatous tissue and acts most strongly where the rate of growth is normally most pronounced. The "W" factor, on the other hand, causes abnormal dedifferentiation and increase of growth of mesenchymatous tissue acting most strongly where growth is usually least pronounced. Applying these hypotheses he suggests that in rickets the essential change can be explained in terms of the "N" factor—i.e., a lack of cellular differentiation in those areas normally showing active growth. It is suggested that as the cells are poorly differentiated, a calcified matrix could not be found even if a sufficiency of calcium and phosphorus were present; this is in keeping with the experimental work of Robert Robison and Henry Fell. Prof. Wilton then goes on to suggest that in achondroplasia the same lack of differentiation is seen as in rickets, but is exaggerated owing to the changes taking place when growth should be even more marked. Accordingly achondroplasia is termed a "biological rickets," though it is emphasised that it is only the cellular process and not the causal factor which is common to both diseases. Further the changes found in bone-forming tissue must be distinguished from those taking place in bone already formed (this applies in particular to rickets). Deformities, such as the rachitic "rosary," are explained very convincingly by the action of the "N" factor on normal enchondral ossification.

The second part of the book is less satisfactory. Here the changes produced by the "W" factor are considered, and it is suggested that scurvy, Paget's disease, and osteogenesis imperfecta are illustrative of this process. It is true that these conditions, clinically so distinct, have morphological features in common, particularly in the marked increase of the so-called fibrous tissue (which Prof. Wilton wisely elects to call Virchow's tissue, for it is not truly collagenous), and that this occurs in those areas where growth is least marked; yet it would be more in keeping with modern biological thought to suggest that this is associated with an abnormal proliferation of undifferentiated tissue rather than a dedifferentiation and subsequent proliferation. It is surprising that no mention is made of the important work of Turnbull, Harris, or Knaggs in this field.

Although the translation is quite good yet there are many obscurities and ambiguities which could have been avoided had the English version been checked by someone familiar with the subject. The book as a whole is so interesting, and Prof. Wilton's hypothesis so stimulating, that it is a pity that it should be difficult to follow.

Operative Obstetrics

Fourth edition. By J. M. MUNRO KERR, M.D., F.C.O.G., late President of the Royal Faculty of Physicians and Surgeons of Glasgow; Obstetric Surgeon, Glasgow Maternity Hospital; Gynæcological Surgeon, Royal Infirmary, Glasgow. With the assistance of DONALD MCINTYRE, M.D., F.C.O.G., late Obstetric Surgeon, Glasgow Maternity Hospital; and D. FYFE ANDERSON, M.D., Senior Assistant to Professor of Obstetrics and Gynæcology, Glasgow University; Assistant Surgeon, Royal Maternity Hospital, Glasgow. London: Baillière, Tindall and Cox. 1937. Pp. 847. 45*s*.

Munro Kerr wrote a book called "Operative Midwifery" nearly thirty year ago, and in successive editions it has been widely used by those seeking sound and practical guidance in any obstetric emergency or difficulty. Rechristened "Operative Obstetrics," the work has now been largely rewritten and entirely brought up to date; but in purpose, form, arrangement, and character it has not changed. Prof. Munro Kerr has a style of his own. It is easy for the new reader to recognise his book as mainly the work of a man who not only has an immense practical knowledge of obstetrics, and a faculty for assimilating, tabulating, and assessing the value of recent work, but also has a real love for his subject and a firm determination to raise the standard of midwifery. He and his collaborators never give advice without explaining why it takes that form, and they are unsparing in their efforts to make the reader understand their opinions and their reasons for holding them. It is necessary to turn to chapters on a controversial subject, such as the management of cases of suspected disproportion, to discover some of the most valuable material of the book. All available information upon the subject is assembled and then comes the judgment, showing why some views are accepted and others condemned. Should the authors believe that a certain practice is dangerous to the patient they show exactly why, not by mere rhetoric but by detailing facts and invoking the recorded experiences of themselves and of others. In this way what might have been an orthodox text-book has acquired the far more intimate and interesting atmosphere of a clinical discussion.

No less than twenty chapters, or half the book, are devoted to dystocia. Our present knowledge of the nature of uterine contractions and of the factors that may influence their efficiency is discussed in detail. Pelvic mensuration by every known means is described and the value of each method is assessed.

A most useful chapter is that on anæsthetics, and analgesic and sedative drugs, especially perhaps the section on the barbituric acid group, of which many obstetricians in this country still disapprove.

The work is well assembled and produced, and the illustrations are excellent. This book has historic as well as educational value. With the other classic by the same author on Maternal Mortality it will not only show what men taught in obstetrics to-day, it will also tell future generations how they thought, argued, and even fought over the difficulties and problems recognised as acute at the period of its production.

The Rôle of Chemiotaxis in Bone Growth

By A. P. BERTWISTLE, M.B., Ch.B., F.R.C.S. Edin. London: Henry Kimpton. 1937. Pp. 59. 8*s*. 6*d*.

THE thesis around which this little book is written is that whenever young fibrous tissue or young blood-vessels come into contact with bone or a calcified deposit, new bone formation occurs. To support this thesis the author has gathered phenomena from the behaviour of the roots of trees, the power of dried tissues to expand by moistening, and the cracking of pots, tumblers, and the rest in frosty weather. For his purpose it is necessary to review the architecture of bone, and the admiration which the author feels for Bouin's text-book has led him to use the account published there. This is indeed an admirable work, but the statements in the paragraph labelled "Bone cells" which are quite accurately translated by Mr. Bertwistle, make curious reading. It begins as follows: "The bone corpuscles are the lenticular spaces from which proceed a number of fine canaliculæ, &c. The cavity of the corpuscle is lined by a kind of non-calcified material, &c." This sounds strange to English readers, for the word "corpuscle" is used in quite a different sense from its usage here. Mr. Bertwistle uses his radiographic studies of bone diseases to illustrate his thesis which is certainly an interesting one. Probably he would claim no more than having collected together observations of a general and a special character which might be regarded as consistent with such a conception.

The Thyroid and its Diseases

By J. H. MEANS, M.D., Jackson Professor of Clinical Medicine, Harvard University; and Chief of the Medical Services, Massachusetts General Hospital. London: J. B. Lippincott Company. 1937. Pp. 602. 25*s*.

THIS is a book by one who has had an opportunity of studying his subject under the best possible conditions, at a time when rapid advances in biochemistry have revolutionised our conception of the pathology of the thyroid gland. That he has made good use of this opportunity is shown by the astonishing amount of information contained in the book, and we appreciate the clear style, the orderly arrangement of the material, and the comfort of handling a volume which for its size is pleasantly light.

In his masterly review, which is delightfully free from repetitions and redundancies, Prof. Means covers a very wide field. He discusses the anatomy of the secreting unit of the gland, the thyroid hormone, the inter-relationships between the thyroid and the other endocrine glands, and the special methods of estimating thyroid activity, and provides a most valuable clinical and pathological account of simple goitre and myxœdema. He deals with the multiple problems of toxic goitre in great detail, and proceeds to chapters on malignant disease, thyroiditis, aberrant thyroid tissue, and the influence of the thyroid in diseases not of thyroid origin, including an account of total thyroidectomy for heart disease.

The more a man knows about a subject the more conscious he becomes of the imperfection of his knowledge, but it is scarcely too much to say that Prof. Means seems almost to gloat over our ignorance, and to be loth even to try to lighten our darkness until the time comes for complete understanding. He adopts a judicial attitude, laying before us all the facts, with documentary evidence relating to them, and summing up the present position, but leaving us to find our own verdict about such important affairs as exophthalmos in Graves's disease, the existence of true adenomas, and the possibility of their becoming toxic, the influence of age upon the clinical picture of toxic goitre, and the ætiology of post-operative thyroid crises, which he calls "storms." The attitude of the agnostic is understandable, but more dogmatism from one with his experience would have been welcomed. It is strange that the chapters full of biochemical facts and figures should be less convincing than those relating to clinical experience, and it is also queer that the author should hold his most decided views about some of the surgical problems. Many surgeons, however, will not agree with his adverse criticism of multiple stage operations, which are still required in cases of unusual severity. Although this work helps to some extent to simplify goitre nomenclature, there is still much to be done before the difficulties of terminology, due almost entirely to perpetuation of the errors of a former generation, are overcome.

We congratulate Prof. Means on producing a readable, scholarly, and complete review of the thyroid gland as it is known to-day.

The Avitaminoses

Chemical, Clinical, and Pathological Aspects of the Vitamin Deficiency Diseases. By WALTER H. EDDY, Ph.D., Professor of Physiological Chemistry, Teachers' College, Columbia University; and GILBERT DALLDORF, M.D., Pathologist to the Grasslands and Northern Westchester Hospitals, New York. London: Baillière, Tindall and Cox. 1937. Pp. 338. 20*s*.

THIS book sets out to cover rather different ground from that over which writers of general text-books on vitamins are used to roam. Chapters are devoted to the nature and functions of each of the better defined vitamins, and these lead up to sections on the vitamins in relation to disease. The book has undoubted value as a starting-point for more specialised study though it is not comprehensive nor very critical. The style of writing lacks charm except for the malicious reader who discovering some curious statement—e.g., that carotenæmia is a misnomer because the condition is not an anæmia—may seek for others of the same order. If he is sensitive to carelessness in small matters he will be distressed by the spelling of phosphorus in three different ways within the compass of a couple of pages. These are however details which will not bother some readers at all. Anyone who wishes to start a serious investigation of the diseases arising from excess or lack of the vitamins can get quite a long way on his road by studying this book.

THE LANCET

LONDON: SATURDAY, OCTOBER 23, 1937

PROPHYLAXIS OF DELINQUENCY

IT is generally believed that the HOME SECRETARY, who recently concluded a tour of British prisons, will introduce a Bill for prison reform in the new Parliamentary session, and it is hoped that in this Bill powers will be sought for the establishment of camps and colonies for the prophylactic treatment of delinquent youth. Something of what is being done at Wakefield, Chelmsford, and the North Sea camps near Boston in Lincolnshire is an indication of the future of the prison system under the expected Bill. At Wakefield there are huts in woodland surroundings in lieu of prison cells, and market gardens, the surplus produce of which is sent to other prisons; at Chelmsford there are physical and educational classes, and an eight-hour working day; at the North Sea camp Borstal boys are engaged in reclaiming marsh-land. These interesting experiments are being carried out by young men already within the prison system, but for many years now a feeling of anxiety has been growing about the absence of any form of official provision for those of our youth, both boys and girls, who are not antisocial enough to require Borstal training. We trust the contemplated Bill will endeavour to formulate some scheme whereby the prophylaxis of delinquency may be ensured, and to this end we would draw the attention of those concerned to what Dr. DENIS CARROLL describes on another page as a promising social experiment.

The birth of an idea is a gradual process and it is not easy to say how the first conception of Q Camps occurred. Much of its inspiration was drawn, and some of its pioneering technique adapted, from the Grith Pioneers whose camps for unemployed men are in active being, and with the most successful results, in the New Forest and in Derbyshire. At these camps the men have cleared their own sites, built their own huts, and manage their own domestic affairs; vegetables have been raised for their personal use, and many of their material needs are supplied by the men themselves at the benches and looms of their own craft houses; cultural desires, also, have found expression in the writing and production of their own plays, in educational classes, discussion groups, and debates. Q Camps have adopted similar methods, aims, and ideals, but have had to deal with difficulties greater than those arising out of simple unemployment. Dr. CARROLL, who is a member of the Q Camps committee, indicates some of these difficulties and the principles employed in dealing with them. "The object," he states, "is to attempt the reformation of minor delinquents, and other socially undesirable types, by means of communal life in a self-governing colony." The name adopted suggests a quest or adventure and avoids the drawbacks of a descriptive title. According to its first annual report[1] the pioneer Q Camp was opened on May 9th, 1936. It is in Essex, but, in order to avoid sensational reports and visits from curious sightseers, the committee have deemed it wiser not to publish the exact locality and ask those who know to respect this reticence. The first camper arrived on May 18th, and others followed at irregular intervals, 25 being admitted during the first year. Eight of these were referred to the camp by the courts or probation officers, 5 by the Institution for the Scientific Treatment of Delinquency which works in close coöperation with the camp, and 5 by the Maudsley and other hospitals; the remaining 7 were sent by parents or friends or others interested in their welfare. Fourteen of these admissions were from London, the others from Brighton, Bristol, Cambridge, Derby, Glasgow, Herts, Reading, Salisbury, Sheffield, Southend, and South Wales. Eleven campers left in the course of the first year, 5 after less than one month's stay, 2 after a period of one to three months, 1 after five months, 1 after seven, and 2 after nine months at the camp. One of these was removed by his parents; 5 left of their own accord, 2 without notice, 1 after twenty-four hours and the other after eighteen days; the remaining 5 were discharged as unsuitable for treatment, 4 having since been convicted and 1 being certified as insane.

Payments towards the maintenance of campers were made by parents or friends in 15 cases, by public assistance committees in 6, from charitable funds in 3, and by the Charity Organisation Society in 1 case. The average weekly payment was 17*s.* 8*d.* per camper, which did not, of course, cover the cost of his keep. Budgetting from the first year's experience, it would seem that with an average number of 25 campers a year the inclusive cost per camper would be about 27*s.* 6*d.* a week; 18*s.* of this should be covered by maintenance fees, leaving something less than 10*s.* a week per camper (say £600 a year) to be found by the Camps committee. It has been computed that about £1000 a year will be necessary for the next three years, £600 a year for maintenance and the remainder for capital expenditure. Finance, indeed, has been a source of continual anxiety, and an auxiliary society, "Friends of Q Camp," has been formed to arrange meetings in large towns where magistrates, probation officers, and medical men may become acquainted with the work of Q Camps, and to establish local branches. We trust these efforts will be justified by results for a perusal of the report of the first year's work clearly shows that the camp is dealing successfully with cases unsuitable for probation and yet not requiring Borstal training. In the words of Dr. CARROLL, Q Camps can be commended both to the medical profession and to official notice.

[1] Q Camps: First Annual Report, May, 1936, to May, 1937. Office: 31, Alfred-place, London, W.C.1. 6*d.*

AMERICAN SURGEONS ON ACUTE APPENDICITIS

IN a recent American discussion of appendicitis as a cause of death [1] there was little advocacy of the delayed operation. It was, however, recognised by several of the speakers that by the time the surgeon saw the patient the disease might have reached a stage at which it was safer to trust to the localising power of the peritoneum rather than risk breaking down its protective barriers. Dr. ROY D. MCCLURE pointed out that the peritoneal spread of infection from the appendix varies; in only a proportion of cases does it tend to localise. His statistics showed that the age of patients with abscesses was higher than the age of those with peritonitis, from which he concludes that the Ochsner form of treatment is more likely to be successful in those who are older. Dr. EDGAR P. HOGAN said that almost perfect results were reported by surgeons practising either the immediate or delayed operation. His explanation was that the experienced surgeon modifies his treatment according to circumstances: the advocate of delay would operate immediately when he thought it necessary, and the believer in immediate operation would leave the case in which delay was life-saving. Everyone agreed that the early case should have immediate operation; and also that the well-established abscess might be safely opened. It is the one seen at the stage of commencing peritoneal spread that needs most judgment, both as to the "when" and the "how" of operation. There was point in Dr. HUBERT ROYSTER'S contribution to the discussion: "I have said repeatedly that I would take my chances, and so would you, with a mediocre surgeon if I had an unruptured appendix, rather than have the most expert surgeon at the eleventh hour." Dr. HOGAN quoted M. RICHARDSON'S opinion, given in 1894, that he occasionally saw cases too late for the early operation and too early for a safe late operation. It is obvious from the context that RICHARDSON applied his principle with care, and by no means always held his hand in cases first seen on the third, fourth, or fifth day. Nevertheless the principle stands and HOGAN thinks that the fact that it was at one time largely disregarded accounts in part for the high mortality from appendicitis in the United States. He quoted Sir JAMES BERRY'S comparison of the fate of King EDWARD VII and of President EBERT of Germany.[2] In 1902 King EDWARD had a delayed operation for appendix abscess. He was first seen by a surgeon on the fifth day of illness, and the operation—a simple drainage of the abscess—took place on the eleventh day. He lived. President EBERT, in 1925, was seen by a surgeon about 21 hours after the onset of his attack and the operation was done three hours later. The appendix was removed by free incision into the peritoneal cavity, and he died four days later. The difficulty is, of course, to be certain in which cases a localised abscess will form.

American surgeons are much concerned about the continued high mortality. Dr. R. S. HILL said he felt safe in saying that the progress of American surgery had been satisfactory in every respect other than the reduction of the death-rate from appendicitis. A fair summary of the conclusions of the discussion seems to be that early operation, within a few hours of the onset of the illness, is the surest means of decreasing the deaths; but that when there has been a delay the services of an expert surgeon are required, both to determine the safe time to operate, and to perform a safe operation. The diagnosis, as Dr. HOGAN put it, should not wait for the stage of subjective symptoms in the right iliac fossa. It should be made before there is enough local infection to produce local symptoms. At the stage of generalised pain there is already, as a rule, localised tenderness. Dr. J. T. MOORE remarked that there were a few principles that he tried to instil into the minds of the coming surgeons of his State: to avoid purgatives till the diagnosis was made; to operate immediately after making the diagnosis, provided they knew how to operate properly; and to get the appendix out without ever letting the ileum come into contact with anything septic. He attributed the high mortality in his part of the country to the performance of so many operations by general practitioners. The discussion revealed a consensus of opinion in favour of the McBurney incision, most of the speakers insisting that in acute appendicitis it is pretty well criminal to use the right rectus incision. An incision so small that it is impossible to bring anything but the appendix through it was Dr. MOORE'S choice. He tries to see nothing but the appendix and the cæcum and, to ensure this, he makes the incision far out. The right rectus incision he designated an exploratory incision and not an incision for appendicectomy.

On the question of drainage, Dr. EDWARD CAFRITZ[3] of Washington is the latest to argue against draining the peritoneal cavity in most cases of appendicular peritonitis. He excepts those in which the appendix cannot be removed, or in which a large mass of necrotic material is left behind; and, of course, he drains walled-off abscesses. In all other circumstances he believes that the drainage is so localised as to be useless, and that it favours both post-operative mechanical ileus and post-operative hernia.

DYING STATEMENTS IN CRIMINAL CASES

THE City of London coroner last week approved the action of a member of the medical staff of one of the big London hospitals who had called in the police to take a "dying statement" from a woman patient. There had been a recent miscarriage. A medical practitioner whom the deceased had consulted stated at the inquest that she had asked him to terminate her pregnancy; this he had declined to do in terms which the coroner evidently

[1] *Ann. Surg.* 1937, **105**, 800.
[2] *Lancet*, 1932, **1**, 1027.
[3] *J. Amer. med. Ass.* 1937, **108**, 1317.

regarded as admirably correct and diplomatic. There was reason to think that the dead woman afterwards had recourse to someone less scrupulous. Her husband said that, after coming out of a period of delirium, she used the words "do not give Blank away," mentioning someone by name. Post-mortem examination showed nephritis, itself a possible cause of miscarriage. A verdict of death from natural causes was returned.

The duty of the doctor in respect of dying statements is clearly explained in medico-legal text-books. He should tell the patient as kindly as possible that she is dying and should put the simple question "do you wish to make any statement?" It is permissible to point out the importance and advisability of making a statement and to explain the use which may be made of it in defending the innocent or punishing the guilty. To give the opportunity of making the statement (by asking the question already mentioned) is the main duty; the urging of the patient to do so is, so to speak, secondary and discretionary. If it is possible to call in the police authorities, the responsibility is naturally transferred. The doctor's task is to note carefully the condition of the patient's mind. If he himself is taking the statement, he should write it down at the first opportunity, and in the actual words used by the dying person as far as possible. He should avoid putting leading questions and, inasmuch as clarity of mind may not be conspicuous at a moment of considerable agitation, he should bear in mind that the law looks a little suspiciously at any effort to secure a death-bed identification of an accused person by confronting the latter with the patient.

The question of the admissibility of a dying statement is for the court to decide. The doctor who obtains the statement leaves that question to the judge. The admission of such evidence is a remarkable exception to the general principle of criminal law that hearsay is inadmissible and that evidence can be given only on oath in open court where cross-examination can follow. The law excuses the exception by holding that, where persons have a settled, hopeless expectation of immediate death, they will not (in language now possibly regarded as old-fashioned) go into the presence of their Maker with a lie upon their lips. "A situation so solemn and so awful," said Chief Baron EYRE in R. *v.* Woodcock (1789), "is considered by the law as creating an obligation equal to that which is imposed by a positive oath administered in a court of justice." A child of four, be it noted, cannot make a valid dying statement because it is not old enough to know of the alternative prospects of Heaven and Hell (R. *v.* Pike, 1829); but the statement of a boy of ten has been admitted (R. *v.* Perkins, 1840). One other limitation is noteworthy. Dying statements are admissible only on charges of murder or manslaughter, not in those of perjury, robbery, or rape, or anything other than homicide. Thus they are not admitted in prosecutions for criminal abortion, though, if the charge is murder or manslaughter, the dying statement may contain the full story of an illegal operation. In one leading case (R. *v.* Perry, 1909) this conversation occurred between the dying woman and her sister. "Oh! Maggie," said the sister, "what did you have that woman for? I don't like her." "Oh! Gert," replied the dying woman, "I shall go, but keep this a secret." She then gave a detailed account of what the abortionist had done to her; this account was admitted at the trial and conviction followed. The case illustrated what is the main point in dying statements. Did "I shall go" mean "I shall die very soon"? The trial judge thought it did, and the Court of Criminal Appeal did not interfere. There must be evidence of the consciousness that death is coming, in Lord ALVERSTONE'S words, "within a very very short distance of time," though not perhaps the same day. What the doctor thinks of the prospect of recovery is immaterial. It is what the patient thinks that matters. In R. *v.* Cleary (1862) where a man had been shot through the body but said he did not think he would die, the court refused to presume that he must necessarily feel that, with such a wound, he could not recover. In R. *v.* Morgan (1875) Mr. Justice DENMAN discountenanced the idea that, by crediting the deceased with ordinary intelligence, one could infer that he must have been conscious of impending death. There are, however, cases where the grave nature of the wounds has made it easy to convince a court that the dying person had the necessary "settled, hopeless expectation of immediate death."

AT the request of the Royal Australasian College of Surgeons, the primary examination for the fellowship of the Royal College of Surgeons of England will be held in Melbourne, Sydney, and Dunedin during November and December. A similar examination will also be held in Bombay early in January and in Cairo at the end of January. The Cairo examination is the first of its kind in Egypt, and the invitation comes from the dean of the medical faculty of the Egyptian University. Mr. C. P. G. Wakeley, a member of the council of the Royal College of Surgeons and senior surgeon to King's College Hospital, will act as the examiner in anatomy at each of these examinations, while Prof. A. St. George Huggett, of St. Mary's Hospital medical school, will examine in physiology. There are 96 candidates in Australasia, 85 in India, and 22 in Egypt, and at each centre the examiners will act with assessors appointed locally by the council of the College. The director of examinations, Mr. Horace H. Rew, will be responsible for the conduct of the examinations in India and Egypt.

Dr. L. Haden Guest was successful last week when he contested the North Islington division in the labour interest. He is a seasoned Parliamentarian and represented Southwark (North) in 1923 when he became Parliamentary private secretary to the Minister of Health. There was nothing specifically medical in his election address this time but at his meetings he laid stress on the importance of improved nutrition, basing his argument on Sir John Orr's facts and figures, especially as to the use of milk.

ANNOTATIONS

ST. BARTHOLOMEW'S HOSPITAL REPORTS

PROGRESS

IF one had to name a score of subjects now attracting attention—in other words the growing points of medicine to-day—the list of articles contributed to *St. Bartholomew's Hospital Reports* for 1937 [1] would be a useful guide. Those on artificial fever produced by physical agents (H. S. Brodribb), the cardiac arrhythmias of thyrotoxicosis (B. C. Nicholson), massive collapse of the lung occurring in bronchitis and asthma (James Maxwell), and treatment by manipulation (H. J. Burrows and W. D. Coltart) are particularly topical. They fulfil the purpose of these Reports "to be a record of the work going on in the hospital" in that the conclusions reached are based mainly on investigations proceeding within its walls, though work outside is given due weight. For example, Dr. Brodribb appends a bibliography of nearly 200 references, mostly quite recent but extending back over sixty years, to his survey, but it is from his own experience that he concludes that the most suitable method of producing artificial fever "which can now be prescribed as accurately as any drug" is by electromagnetic induction (inductothermy) used in conjunction with a heat-insulating cabinet or bag. Similarly Burrows and Coltart detail, analyse, and discuss some 1000 manipulations undertaken in the orthopædic out-patient department of the hospital during the five years 1932–36 on the type of cases which, to quote Paget, "bone setters cure"; that is, mostly cases of chronic sprain and strain. The variation in the results of such treatment of similar conditions in different joints has been striking—e.g., reasonably satisfactory results follow manipulation of tarsus or knee affected with osteoarthritis, but the hip does not respond well. In their view no theory of breaking down adhesions or reducing subluxation adequately explains the results obtained; they regard the procedure adopted as largely empirical so that in the selection of suitable cases the main guide must be experience. This communication provides welcome refutation of the criticism that medical students are not given opportunity to study manipulative methods. Another criticism of a different order is met by the account of 37 infants with pyloric stenosis successfully treated in open wards following Rammstedt's operation during the last 8½ years. Charles Harris points out that 36 of the children survived, the average stay in hospital being 2 to 4 weeks including the time spent in confirming the diagnosis, and that since the results are so satisfactory doctors would do well to send more cases to general teaching hospitals as opposed to special hospitals so that students may learn to recognise the condition. Geoffrey Keynes adds a note on the procedure now adopted in preparation for Rammstedt's operation which he performs under local anæsthesia; the anæsthetist is there ready to give gas and oxygen for closing the abdomen, but nearly always his services are confined to the provision of a finger-tip previously dipped in glycerin for the infant to suck. F. C. W. Capps analyses some tumours of the nasopharynx, nose, and maxilla, with particular reference to the occurrence of lympho-epithelioma. F. G. Chandler discusses the treatment of a non-expanding lung after spontaneous pneumothorax. P. D. R. McEwen describes the upper accessory lobe of the right lung. J. Paterson Ross, G. Discombe, and A. H. T. Robb-Smith use a case of multiple myelomatosis to illustrate the value of biochemistry in the diagnosis of bone disease; H. F. Brewer comments on the titre of iso-hæmoglutinins in human sera and its importance in stock groups sera; and J. P. Hosford discusses acute suppurative arthritis of the hip-joint. W. Girling Ball opens the volume as patient and surgeon, using his own case-history, happily sixteen years out of date, to illustrate his survey of a series of 100 cases of gall-bladder disease and ends it as dean of a school which admitted in the years 1925–29 inclusive 533 students whose fate he analyses. Eighty failed to qualify for various reasons; 25 are still working, and Mr. Ball expresses the hopeful view that most of them "will probably qualify shortly." Of the 261 entering for the University of London course 222 qualified, 4 with a degree only, 97 with both degree and Conjoint diploma, and 90 who had passed second M.B., B.S., with diploma only. The rest (31) took Conjoint without having passed second M.B., B.S., and 39 have failed, so far, to qualify. It is noteworthy that of the 200 men who passed second M.B., B.S., only 101 (50 per cent.) obtained the degree, but also that only 109 have hitherto sat, of whom 93 per cent. passed it. Commenting on these and other results, Mr. Ball points out that since the great majority of students are admitted for university courses, it is incumbent on the College to obtain a higher number of degree qualifications. He adds significantly: "This may be made possible by an alteration of the degree examination," touching on a question now becoming a burning one in academic and collegiate circles.

If we have been at pains to draw attention to the good fresh material available for those who browse in this volume it is because so-called hospital reports often consist, quite legitimately, of reprints of communications already published by the staff and then bound together for the honour of the institution that provided facilities for the work. There appear to be only some 300 regular subscribers to *St. Bartholomew's Hospital Reports*, which would be a deplorably small number for a hospital admitting 100 students a year, even if they were buying from pious motives a mere collection of reprints; but these are original essays of real merit, properly documented. For homogeneity in production only one small matter requires editorial attention—the systemisation of the references according to the convention now generally adopted by serious medical publications throughout the world.

[1] St. Bartholomew's Hospital Reports, Vol. LXX. London: John Murray. 1937. Pp. 381. 21*s*.

RECOVERY AFTER HEART STASIS

RESTORATION of the heart's beat after it has stopped is always a dramatic and sometimes a lasting satisfaction. When the stoppage has occurred during the administration of an anæsthetic and has lasted so long a period as thirteen minutes, recovery has ultimately ensued although evidence of cerebral damage remained for many weeks before complete restoration. Sometimes the heart has been stimulated directly by injection of adrenaline into the wall of the ventricle, although some authorities maintain that the best site to puncture is the right auricle, and that it is the stimulus of the puncture which is effective rather than the injected liquid. An example of success after injecting adrenaline through the

fourth left intercostal space, presumably into the substance of the left ventricle, is related by Rouffart [1] who was to operate on a woman of sixty years for intestinal obstruction. The obstruction was severe; there had been vomiting and distension for four days. The patient underwent total hysterectomy, followed by vesical fistula also cured by operation, eighteen years previously and the present trouble was obviously due to long-established adhesion. Her pulse was 120 and her condition poor. She was given an intraspinal injection of 12 c.cm. of 1/1000 percaine solution (fourth lumbar interspace) while in a sitting position, being immediately afterwards laid flat for five minutes and then placed on the back. Cardiazol-ephedrine was then injected. After this the surgeon was completing his preparations when the nurse left in charge of the patient reported a sudden collapse. The patient was found to be pulseless and not breathing, and the heart's beat could not be felt. While his assistant did artificial respiration and had the tongue drawn forward Rouffart plunged a needle through the left fourth intercostal space near the sternum, and injected 1 c.cm. of adrenaline 1 in 1000. The needle remaining motionless, he injected a further cubic centimetre and it began to oscillate. Artificial respiration was needed for another five minutes. The operation was carried out, taking about forty minutes, and at its close there was a violent action of the bowels. Consciousness began to return about half an hour after the initial collapse. The patient made a complete recovery, although complaining of precordial pain for eight days after the operation.

THE PITUITARY GLAND AND THE MENOPAUSE SYNDROME

IT was at one time believed that in small doses irradiation had a stimulating effect on the pituitary, and such doses were given in amenorrhœa with the idea of increasing the secretion of the anterior lobe. It is now known, however, that the effect of irradiation is always to inhibit function, the apparent stimulation being due to a compensatory increase after radiation has been discontinued; and the suggestion has been made that the secretion of prolan might be reduced by producing destructive changes in the anterior lobe which are not severe enough to interfere with the other functions of the gland. R. Zollinger and W. W. Vaughan [2] decided to try to test this possibility by irradiating the pituitary gland in 14 women who came to the Peter Bent Brigham Hospital, Boston, complaining of varying degrees of discomfort, mostly severe, during the menopause. The symptoms treated were hot flushes, perspiration, headaches, and insomnia. None complained of menorrhagia. It is worth emphasising that menopausal menorrhagia should never be treated indirectly without a biopsy to exclude cancer of the cervix or of the body. Biopsies of vaginal mucosa were obtained in ten of these cases; all showed post-menopausal changes. Doses were 1400–1600 r to circular skin portals, 5 cm. in diameter, over a period of 4 days. The factors were 200 kv 50 cm. target skin distance and 2 mm. copper filtration, so that the dose to the gland was probably about 100 per cent. of the skin dose. Of the patients treated 5 were much improved, 3 recorded some improvement, and 6 no improvement. To rule out the psychological element a sham course, followed later by a genuine one, was given to three patients with very indefinite results. The authors admit that the mental attitude often determines the persistence of symptoms, so that it is reasonable to assume that it may also determine their onset.

It seems very doubtful if irradiation of the pituitary in such conditions is justifiable. If the doses are low they are probably ineffective; quite high doses reaching the sella in the course of treatment of other tumours invading the base of the skull have no obvious early effect on pituitary function, and it is not worth while to treat the temporary discomfort associated with the menopause unless early relief can be expected. On the other hand, really large dosage carries a risk and little is yet known about the late effects of irradiating the pituitary or the intervening cerebral tissue.

DIPHTHERIA OF THE SKIN

IT was at one time believed that cutaneous diphtheria can only be diagnosed if false membrane is present in some part of the lesion. Some modification of this view would appear to be necessary if recent work and observations by various authors are confirmed. Knowles and Frescoln [1] declare, however, that diphtheria on the skin may be either primary or secondary to some nasal or pharyngeal focus. They cite the view of other authorities that it may occur without any suggestion of a membrane in the form of impetigo of a bullous type, or even as an impetiginous eczema; such cases are said to have been associated with specific paralyses, and even to have ended fatally. J. T. MacCarthy has recently [2] reported from Ireland a case where bacilli similar to the Klebs-Löffler bacillus, both in appearance and staining properties, were recovered from a moist patch in the axilla of a child. A swab had been taken because the father had clinical diphtheria of the throat, though the cultures from this source were "not quite typical." The fact that the child had just recovered from scarlet fever is worth noting, for other observers have recorded the sequence. S. N. Galbraith described in 1934 the development of diphtheria in a Maidstone hospital in a child of 5 who was about due for discharge after scarlet fever; no cases of diphtheria were under treatment at the hospital at the time, and, seeking for the source of infection, he found reasons (not detailed in his report) for regarding as a carrier another child admitted for scarlet fever who also had impetigo. He may have been influenced by a previous experience when he found "a diphtheria bacillus" in the pus from impetigo sores during an outbreak of diphtheria, and deduced a relationship between impetigo and diphtheria. Dr. Galbraith seems to have been satisfied that the bacilli obtained from the impetigo sores were true diphtheria, but the pathologist or dermatologist would have inquired what tests of virulence had been done to confirm the results of morphological examination. An example of the extreme caution and care necessary to prove the case is afforded by a recent paper on diphtheroid ulceration (it will be noted that no claim is made for the Klebs-Löffler identity) by H. W. Barber, P. L. Giuseppi, and F. A. Knott.[3] This is an exceedingly interesting and complete study of two cases of ulceration of the skin caused by a *diphtheroid* bacillus, with notes of a case supplied by Sir Ernest Graham-Little, in which the mouth and throat were also involved. The conclusions are stated with the greatest reserve, in spite of evidence which to the ordinary reader might seem conclusive, in

[1] *Brux. méd.* August 22nd, 1937, p. 1536.
[2] *New Engl. J. Med.* August 5th, 1937, p. 219.

[1] Diseases of the Skin, London, 1936, p. 416.
[2] *Brit. med. J.* Sept. 25th, 1937, p. 621.
[3] *Brit. J. Derm.* Aug and Sept., 1937, pp. 360–376.

favour of a Klebs-Löffler infection. The fact is that the skin, particularly when it is inflamed or discharging, becomes a habitat of all sorts of organisms, which may be of primary but is more usually only of secondary causal importance. When the frequency of impetigo is compared with that of diphtheria it seems obvious to the impartial observer that they cannot be closely related.

OPIUM-SMOKING

Mr. Leonard Lyall, who has ably presided over the Permanent Central Opium Board of the League of Nations, has lately written an informative essay [1] entitled Does Opium-smoking Shorten a Man's Life? Informed opinion has differed over the physiological or other effects of opium whether ingested, inhaled, or injected. A distinguished pharmacologist has asserted that smoking is "by far the least objectionable way of taking opium." The official view in India however is that opium-smoking is a "vicious habit" and "harmful to the Burman race." We have travelled a long way from the findings of Lord Brassey's Commission of 1895 which held opium to be "the universal household remedy. It is extensively administered to infants and the practice does not appear to any appreciable extent injurious." The same authority regarded the revenue derived from the export of opium, largely for smoking, to be "indispensable for carrying on with efficiency the Government of India." During the International Opium Conferences at Geneva in 1924–25 reproach was levelled against the British Government because "a very considerable proportion of the revenues of certain of the Crown Colonies is drawn from the traffic in opium for smoking, which is a criminal offence in the self-governing parts of the British Empire and which His Majesty's Government is internationally bound to suppress." Since 1926 the policy enunciated by the late Lord Reading, when Viceroy, of progressively reducing the export of opium from India has been pursued. Nevertheless the objective set out in the Hague Convention of 1912—namely, "the gradual and effective suppression of the manufacture of, internal trade in and use of prepared opium (for smoking) and the prohibition of import and export of prepared opium"—remains, despite the Bangkok agreement, unfulfilled. Mr. Lyall's opportune pamphlet, based largely on statistics prepared for the Japanese Government by Dr. Somei To of the Formosa Laboratories, conclusively shows that, at all ages, the death-rate among opium-smokers is higher than in non-smokers.

NEW METHOD OF ASSAY FOR LIVER EXTRACTS

THERE are several reasons why progress should be slow in the analysis of the principle in liver extracts which is effective in pernicious anæmia. It is probably of a protein or polypeptide nature and the chemistry of such substances is intrinsically difficult. A greater obstacle is the difficulty in testing fractions because pernicious anæmia is relatively uncommon in man and cannot be reproduced with any certainty in animals. The nearest equivalents are the macrocytic anæmia produced in monkeys by deficient diet and the macrocytic anæmia associated with cirrhosis of the liver induced in the rabbit and other animals by chronic poisoning with carbon tetrachloride. Both of these conditions need a good deal of money and time to produce, and in the end it would appear that they are akin to, rather than identical with, pernicious anæmia. They may react in a different way to different fractions of liver, and it seems that we should speak of a liver complex rather than a single principle. Jacobson and Subbarow [1] suggest that liver extract contains a primary factor and three chemically distinct accessory factors, of which one is tyrosine, another contains a complex purine, and the third is a peptide. The accessory factors are completely inert without the primary factor, while the primary factor is therapeutically only slightly active without the accessory factors. A new test for the anti-pernicious effect of liver extracts is proposed by Wolf, Weber, and Kröger.[2] Rabbits injected daily with an extract of typhoid bacilli developed a progressive anæmia of high colour-index usually associated with leucopenia and thrombocytopenia, and died within two or three weeks. If liver extract was injected at the same time as the typhoid extract, there was a reticulocytosis about the twelfth day, the anæmia began to improve, and the animals remained alive and relatively well for eight weeks. As a corollary to these observations, liver extract is suggested in the treatment of typhoid fever in man. These results are surprising, for there seems little analogy between a toxic anæmia of this kind and pernicious anæmia, and infection depresses or neutralises the action of liver extract in megalocytic anæmias in man. The experimental procedures are so simple that we can be sure they will soon be repeated by other workers, and if it is confirmed that liver extract neutralises the action of typhoid toxin and that its power to do this runs parallel with its effect in pernicious anæmia, two great advances will have been made.

CACAO SHELL AS A SOURCE OF VITAMIN D

THE desirability of increasing the vitamin-D content of the winter diet in this country—especially the winter diet of young children—is very generally accepted. The obvious vehicle for the purpose is milk, but during the winter the antirachitic potency of milk and its products decreases to less than half the summer value. A cheap method of raising the vitamin-D content of winter milk might thus be of great importance. Addition of irradiated yeast or cod-liver oil to the food of cattle will serve the desired purpose, but at a substantial cost. An interesting alternative now suggested is the use of cacao shell—a by-product, hitherto almost a waste product, of the cocoa industry—which has been found to be not only a useful cattle foodstuff but also, rather surprisingly in view of its vegetable origin, a rich source of vitamin D. The shell is said to have at least a quarter of the vitamin-D content of cod-liver oil,[3] and experiments by Kon and Henry [4] have shown that part of the vitamin D in cacao shell consumed by cows is conveyed to the milk, so that butter made in the winter from this milk may have a vitamin-D content equal to that of summer butter. The origin of vitamin D in the husk of the cacao bean has been shown by Knapp and Coward [5] to be the irradiation of an ergosterol-containing yeast, which develops in the mucilaginous pulp on the shell, and which, exposed during the drying process to tropical sunlight, develops strong antirachitic potency. Beans dried artificially or in the dark contain no vitamin D; hence if cacao shell is being fed either to young farm

[1] Issued by the Women's International League for Peace and Freedom, 55, Gower-street, London, W.C.1.

[1] Jacobson, B. M., and Subbarow, Y., *J. clin. Invest.* 1937, **16**, 573.
[2] Wolf, H. J., Weber, L., and Kröger, E., *Med. Welt*, August 21st, 1937, p. 1170.
[3] Knapp, A. W., and Coward, K. H., *Analyst*, 1934, **59**, 474.
[4] Kon, S. K., and Henry, K. M., *Biochem. J.* 1935, **29**, 2051.
[5] Knapp, A. W., and Coward, K. H., *Ibid*, p. 2728.

stock to prevent rickets, or to cows to increase the antirachitic power of their milk, its method of preparation is important. Another property of the cacao shell appears to be its ability to increase slightly the butter-fat content of cow's milk. This was first suggested in experiments just quoted [4] and was subsequently confirmed by Golding and Burr,[6] and demonstrated during a test on a larger scale by Knapp and Churchman.[7] The rise in the fat content is possibly due to the stimulating effect of theobromine, found to the extent of 1 per cent. in the cacao shell. On account of the theobromine it is considered inadvisable to feed more than 2 lb. of cacao shell per head per day to milking cows. We understand, however, that H. C. Dowden has shown that when fed in relatively massive amounts to cows, theobromine does not reach the milk in appreciable quantities, and it can therefore do no harm to children receiving milk from cows on a cacao-shell ration.

POST-NORMAL OCCLUSION

BY the term "post-normal occlusion" dentists mean that the lower six-year-old molar meets the upper molar in a plane posterior to normal and instead of projecting beyond the upper molar lies partly behind it. On the assumption that the arrangement of the teeth is an index of a corresponding relationship of the jaws, post-normal occlusion should imply that the mandible is on a plane posterior to normal, thus giving rise to the appearance of a receding chin. This classification was introduced by E. H. Angle, the American dentist, who may be termed the father of orthodontics, and it is still used as a convenient means of classifying the main irregularities of the teeth. If the chin and lower jaw are receding then the upper incisors appear unduly prominent and the facial appearance becomes displeasing. Various methods are employed to treat these irregularities of the teeth, but though many excellent results are obtained, treatment is still somewhat empirical because precise knowledge both of normal and abnormal growth of the face and jaws is still lacking. In 1932 the Medical Research Council published a report by Miss K. Smyth and Dr. M. Young on facial growth, based on an elaborate series of measurements of a large number of children. The sequel now published [8] is devoted to post-normal occlusion and will be found instructive. An analysis of the measurements obtained, for which Dr. Young as the statistician is responsible, suggests that contrary to the usual belief the disharmony observed in the jaws and dental arches in post-normal occlusion is due more often to excessive forward growth of the upper jaw than to retrusion or undergrowth of the mandible. A point of interest is that the findings in boys differ from those in girls. Thus in fully three-quarters of the boys the upper jaw was at fault, whereas in girls the proportion was less and a true retrusion of the mandible more common. The authors group the varieties of post-normal occlusion encountered into three types: those in which the inclination of the upper incisors was almost vertical or only slightly forward; those in which the upper incisors showed conspicuous labial inclination; and those in which the upper incisors showed conspicuous lingual inclination. In the first type the appearance of post-normality is probably due to a forward projection of the upper jaw, whereas in the second and third types protrusion of the upper jaw and retrusion of the lower jaw appear to share about equally in producing a post-normal appearance. The main result of the investigation can be summarised by saying that it provides suggestive—though perhaps not quite conclusive—evidence that in the great majority of boys, and in a smaller proportion of girls, post-normal occlusion is due to excessive forward growth of the upper jaw and not to retrusion of the lower jaw. When upper protrusion and lower retrusion coexist either may predominate, the chances being about equal.

As a contribution to anthropometrics this has been a valuable piece of work well worth doing. At present it does not seem to offer much help to the orthodontist concerned with treatment, but in the long run the accumulation of exact knowledge of the growth of the face must give his work a firmer foundation.

[6] Golding, J., and Burr, H., *Agric. Progr.* 1937, **14**, 44.
[7] Knapp, A. W., and Churchman, A., *J. Soc. Chem. Ind.* 1937 **61**, 29.
[8] Investigations into the Nature and Characteristic Features of Post-Normal Occlusion. By Matthew Young, Elsa Johnson, Korisande Smyth, and Mildred Still. H.M. Stationery Office. 1*s*. 6*d*.

A MEDICAL UNIT IN SPAIN

THE hospital established by the Spanish Medical Aid Committee at Grañen,[1] between Huesca and Saragossa, was destroyed in an air raid on Oct. 11th. When the hospital was handed over to the Spanish Government authorities last January six English nurses were left to help the Spanish staff, and the English committee continued to send supplies; but recently these nurses had been moved to another section of the Aragon front. The English unit has now taken over another hospital containing 643 beds of which 500 are occupied, and during the Brunete attacks a few weeks ago more than 5000 patients were treated there. The Spanish Medical Aid Committee has been asked to modernise this hospital and train Spanish nurses in it, and for the extension planned 550 new beds will have to be sent from England. In addition the committee is fitting out a new mobile surgical unit consisting of several vehicles equipped to carry the requirements of an operating theatre and a small emergency hospital to the front line at very short notice. The main vehicle, resembling a pantechnicon, will contain sterilisers and an operating table, while an auxiliary car will take an X ray apparatus and an emergency lighting set. The committee, whose address is 24, New Oxford-street, London, W.C.1, now maintains in Spain nearly 50 ambulances and lorries and a trained staff of 80; it is responsible for two base hospitals and three field hospitals. Six members of the unit have lost their lives.

SCHOOL-CHILDREN IN 1936

THE report [2] of the Board of Education for 1936 shows that the numbers on the registers of the elementary schools again fell substantially—from 5,400,000 in 1935 to 5,250,000 in 1936. The estimated expenditure for the year, on the other hand, increased by nearly 2 million pounds to 48 million, mainly owing to the remission of previous reductions in teachers' salaries and the growing number of pensioners. The year was one of considerable educational development. The Education Act, 1936, which provides among other things for the raising of the age of compulsory school attendance from 14 to 15 after September, 1939, received the Royal Assent in July. Of the children who were admitted to the grant-aided secondary schools in the autumn

[1] Described in *The Lancet*, 1936, **2**, 1295; see also 1937, **1**, 1188.
[2] Education in 1936. H.M. Stationery Office. Pp. 199. 3*s*. 6*d*.

term 1936, 67·3 per cent. were given special or free places, and it is notable that of 719 entrance scholarships and exhibitions awarded at Oxford and Cambridge 374 were won by pupils from these schools, and 65 per cent. of these had previously been educated in public elementary schools. There was a further rise in the amount of land acquired by local education authorities for use as playgrounds and playing-fields, in the expenditure on sending children to camp-schools and holiday camps, and in the number of evening classes for adults in physical exercises, dancing, swimming, and the like. Arrangements are being made at certain colleges for courses in physical training for teachers on the lines of the advanced courses in other subjects, and more local authorities have followed the chief medical officer's advice by appointing physical training organisers. The milk-in-schools scheme was in force in 83 per cent. of the departments of elementary schools against 79 per cent. in 1935, but less than half of the children availed themselves of it. This appears to have been due mainly to indifference on the part of parents and to dislike on the part of the children. The results of the assessment of nutrition at routine inspections were almost exactly the same as in 1935—14·6 per cent. excellent, 74·2 per cent. normal, 10·5 per cent. slightly subnormal, and 0·7 per cent. bad. The returns showed no evidence of any general deterioration in the condition of the children, but the percentage of slightly subnormal nutrition was definitely higher in the most depressed areas than elsewhere.

SULPHANILAMIDE AND A DISASTER

IN our last issue Surg.-Commander Crean gave an encouraging account of the use of Prontosil and sulphanilamide for gonococcal infections. His good opinion gains support from Dr. Harold Orr[1] of Edmonton, Alberta, who has given sulphanilamide to 104 men and 30 women with gonorrhœa (mostly acute), and reports that 91 of the males and 26 of the females were cured within fifteen days. Every patient had, by mouth, 80 grains of sulphanilamide a day for four days, gr. 40 a day for four days, and then gr. 20 a day for seven days, each daily dose being divided into four. They were told to drink a lot of water and milk but no other fluids, and they had no local treatment whatever. The failures included relapse as long as three weeks after apparent cure, but no complications arose in any case after sulphanilamide was given, and Orr interprets his preliminary results as an indication that the remedy is of outstanding merit in the treatment of gonococcal infections. Six patients developed rashes on parts of the skin exposed to sunlight; all were conscious of "a drug effect, which varied from a slight feeling of dizziness or lassitude to a definite inability to do work which required mental concentration"; and one patient probably had a few hours' methæmoglobinæmia. But blood counts done in more than 100 of the 134 cases showed no changes attributable to the drug, and Orr regards it as "relatively non-toxic."

Meanwhile Tuesday's *Times* contains news of a disaster at Tulsa, Oklahoma, in which 9 out of 10 persons receiving a proprietary "elixir of sulphanilamide" for sinus infection have died, 6 of them being children; and later reports tell of 4 other deaths in Illinois. Tests made by the American Medical Association are stated to show that this elixir appears to be a solution of sulphanilamide in a menstruum containing about 72 per cent. of diethylene glycol; and since some of the patients had been taking ordinary sulphanilamide for a fortnight without apparent harm there is reason to think that the diethylene glycol rather than the sulphanilamide was responsible. An advance quotation from this week's *Journal of the American Medical Association* concludes with the words: "This tragic experience should be a final warning to physicians relative to the prescribing and administration of semi-secret unstandardised preparations."

[1] *Canad. med. Ass. J.* October, 1937, p. 364.

CLINICAL FACILITIES FOR WOMEN STUDENTS AT THE WEST LONDON HOSPITAL

AT the annual dinner of the Chelsea Clinical Society this week Sir Ernest Graham-Little, M.P., announced in the presence of the chancellor as well as the principal of the University of London that on Oct. 20th the senate of the University would recognise the West London Hospital for the teaching of under-graduates on condition that women are admitted as well as men. The lack of clinical facilities in London for women medical students has long been a matter of anxiety, especially among those who begin their preliminary scientific work in Oxford or Cambridge. The places at the Royal Free Hospital are mostly claimed by students coming in direct from the London School of Medicine for Women; King's and University Colleges always have many more studying anatomy and physiology than the dozen or so accepted at their attached hospitals. The admission to the clinical courses are thus competitive, and the need to gain a high place in a special local examination after the Second M.B. has been passed has added much to the strain. The development of the West London Hospital, which has well over 200 beds, excluding pay-beds, and is already a well-known centre for post-graduate teaching has long been projected but was delayed pending the completion of the Silver Jubilee extensions which were opened by Queen Mary on Oct. 18th. These include casualty wards, a new pathological department, and a diagnostic radiology department. We wish every success to the venture.

AT a meeting of the Royal Australasian College of Surgeons held in Melbourne on Sept. 2nd, the honorary fellowship was conferred on Prof. G. Grey Turner.

THE biennial dinner of the Royal Society of Medicine will be held on Nov. 10th at the May Fair Hotel at 8 P.M. Sir John Parsons will preside, Sir John Simon will toast the society, and Mr. Walter Elliot will respond for the guests.

Lord RUTHERFORD, who died on Tuesday at the age of 66, held the Cavendish chair of physics at Cambridge in succession to Clerk Maxwell, Rayleigh, and J. J. Thomson, and by his brilliant generalisations completed the revolution in our ideas of the composition of matter. Had he not lived and worked we might still be thinking of elements as untransmutable and of atoms which could never be broken up. We owe to him a large part of the understanding of radio-activity and of the atomic nucleus which make up the background of present progress in experimental science.

ROYAL MEDICAL SOCIETY, EDINBURGH.—The inaugural address of the 201st session of this society was given on Friday last by Dr. J. D. Pollock, who spoke on the exhumation of the ex-German warships at Scapa. Dr. A. G. Ross Lowden, senior president, was in the chair, and a vote of thanks was proposed by Sir David Wilkie, seconded by Dr. J. M. Macfie.

SPECIAL ARTICLES

INCREASE OF DENTAL CARIES IN GREENLANDERS

BY G. KROGH-LUND, M.D.

FORMER MEDICAL OFFICER TO THE GREENLAND BOARD OF ADMINISTRATION

DURING my stay in Greenland in 1931–33 I had an opportunity, while carrying out some bacteriological investigations, at the same time to examine the conditions of the teeth in a good many Greenlanders. Similar work has been reported before by physicians as well as by dentists, but, as far as I have been able to find out, systematic examinations of the teeth in a fairly large number of Greenlanders have been recorded only once before—by Budtz-Joergensen in 1922.

She examined 500 Greenlanders. In the principal settlements ("colonies") she found caries of the teeth in 58 per cent. of the persons examined; in the outposts she found caries in 10 per cent.; and she states that, according to Knud Rasmussen and Peter Freuchen, caries is said to be found only in 2 per cent. of the Greenlanders living at Cape York. In a subsequent investigation she gives even higher figures.

It seemed as if a systematic inquiry into the occurrence of caries in a relatively large number of Greenlanders would be of interest, since the more summary observations reported in recent years had indicated that its incidence was increasing. For instance, Pickerill in 1914 gives the incidence of dental caries among Eskimos as 4 per cent., while other of the older authors put it as low as 2 per cent. As a rule, this estimate is the proportion of the population in which caries has been found in one or more teeth.

Such an estimate gives but little information, and other methods were subsequently adopted to express the incidence of caries, either (1) as the proportion of decayed teeth given as a percentage of the teeth present in each individual, or (2) as the occurrence of disease in each individual tooth, as a percentage of the total number for a fairly large number of individuals. It goes without saying that these estimates give a far more objective illustration of the actual conditions than the older method.

SCOPE OF THE INVESTIGATION

Name	Type.	Total population.	No. examined.
Godhavn	Colony.	288	230
Umanak	,,	236	127
Satut	Outpost.	184	107
Nugaitsiak	,,	102	77
Uvkusigssat	,,	70	47
Ikerasak	,,	83	47
Agpat	Dwelling.	21	10
Total	—	984	645

My material comprises the results of examination of 645 Greenlanders in North-west Greenland, distributed over all age-classes and both sexes. These examinations were carried out in the places shown in the Table.

Thus these examinations cover 65·5 per cent. of their total population. In view of my relatively short stay in these places (except in Godhavn) the proportion of the population that responded to my call for examination was surprisingly high, for these people were busily engaged all day long, often far from home.

RESULTS

Of the total number examined, 279 are males and 366 females. Their age-distribution is as follows:—

Years ..	1–5	6–11	12–19	20–29	30–39	40–49	Over 50
Males ..	55	48	32	48	33	26	37
Females ..	56	58	59	62	57	28	46
Total ..	111	106	91	110	90	54	83

In comparison with the old statements about 2–4 per cent. attacked by caries, I found, like Budtz-Joergensen previously, far higher figures—namely, 82·2 per cent. persons with caries involving one or, in most cases, several teeth among the 645 examined. If we divide the teeth into permanent and deciduous groups, we find caries in 82·8 per cent. of those with permanent teeth, and in 73·8 per cent. of those with deciduous teeth. Children with both deciduous and permanent teeth are entered in both groups.

The incidence of caries in each individual tooth, permanent as well as deciduous, is illustrated in Fig. 1. The individual numbers of the teeth from 1 to 8 on both sides are put down along the abscissæ. The number of decayed teeth are expressed as a percentage of the number of teeth present. It will be noticed that in the permanent teeth the affected percentage varies from 40–50 for the 6th tooth to 10–20 for the 1st teeth. There is a pronounced symmetry between the

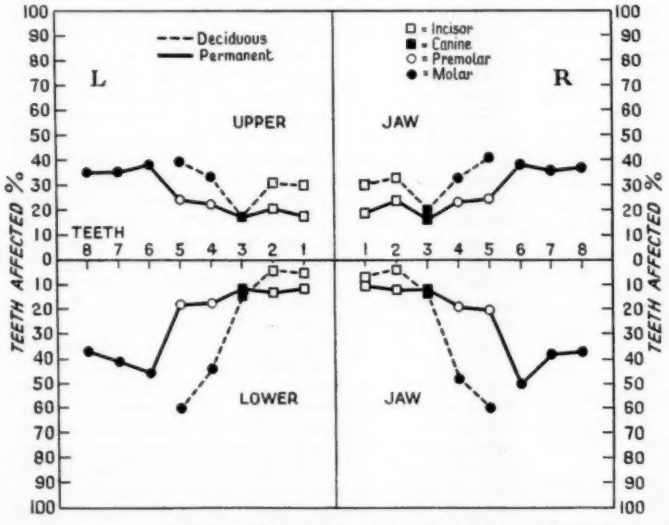


FIG. 1.—Incidence of caries in each tooth.

two sides of the mouth. It will also be noticed that the difference in the occurrence of caries in the incisors and in the molars is far more pronounced in the lower jaw than in the upper jaw. The possible cause of this has been the subject of considerable discussion, and various views have been advanced, but none of them has hitherto been able fully to explain it.

The number of deciduous teeth attacked by caries varies here from 20 to 40 per cent. in the upper jaw, and from 5 to 60 per cent. in the lower jaw, the molars of the lower jaw being particularly severely attacked.

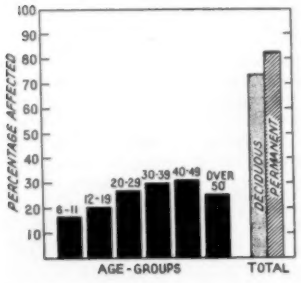


FIG. 2.—Incidence of caries in age-groups over 6 (645 cases).

Fig. 2 illustrates the incidence of caries as a whole within the different age-groups over 6. There is a gradual increase up to the age of 50; the subsequent fall above this is perhaps to be explained by the fact that these elderly Greenlanders have had so many teeth extracted that only the best remain. Perhaps it is also a not inessential point that this generation comes from a time when various factors, including the diet, were considerably different from the conditions nowadays.

SOURCES OF ERROR

In an account like this several sources of error are to be reckoned with.

First, the numbers of carious teeth are minimum figures, as a very slight degree of caries may be overlooked—and, no doubt, it has been overlooked in some cases where its localisation has been subgingival or limited to the surfaces of contact of the teeth. This is because the examination was made by means of a tongue depressor, probe, and electric torch, but without a mirror.

Secondly, some of the missing teeth ought to be included in the count, since until recently extraction—as opposed to filling—has been the usual treatment for caries. In this series the number of missing permanent teeth has been increasing gradually with advancing age.

The average number of missing permanent teeth in the various age-groups has been as follows:—

Age-group ..	6–11	12–19	20–29	30–39	40–49	Over 50
Teeth missing..	0·9	0·8	2·8	4·9	7·8	9·6

Of course, it is impossible to estimate with any degree of accuracy how many of these missing teeth may have been extracted on account of caries. Keeping in mind the occurrence of paradontosis, the possibility of local violence and of scurvy, it is evident that not all the missing teeth could have been extracted.

SUMMARY

1. The incidence of dental caries is investigated in 645 natives in North-west Greenland. The disease was found in 88·2 per cent., generally involving several teeth.

2. A graphical presentation is given of the occurrence of caries for each individual tooth, permanent as well as deciduous. The curve shows the number of decayed teeth expressed in percentage of the teeth present at the time of examination.

3. The frequency of caries for all examined persons over 6 is also presented graphically.

REFERENCES

Budtz-Joergensen (1922) *Grønl. Selsk. Aarskr.* 1922, p. 17.
Pickerill, H. P., (1914) The Prevention of Dental Caries and Oral Sepsis, 2ED., London.

THE AUSTRALASIAN MEDICAL CONGRESS

TUBERCULOSIS IN THE COMMONWEALTH

THE fifth session of this congress was held in Adelaide from August 23rd to 28th under the presidency of Sir HENRY NEWLAND. Some 450 members and visitors attended, and the scientific work was dealt with in fifteen sections, including one devoted to medical literature and history. At a trade exhibition held in connexion with the congress most of the scientific apparatus, hospital furniture, surgical instruments, and drugs shown were of Australian manufacture, but British firms were also represented.

At the inaugural meeting, opened by Sir GEORGE MURRAY, lieutenant-governor of South Australia, Sir Henry Newland gave a presidential address in which he spoke of the application of scientific knowledge to human betterment, the influence of heredity on disease, the ageing of the population, the progress of specialism, and the possibilities of health insurance in Australia. At this meeting Sir Henry was presented with the gold medal of the British Medical Association in Australia in recognition of his outstanding services to the medical profession. The medal has previously been awarded only three times since it was instituted in Australia in 1922.

TUBERCULOSIS TO-DAY AND TO-MORROW

The principal subject of discussion at the congress was tuberculosis, and the scientific proceedings opened with a plenary session.

The PRESIDENT said that in South Australia this disease claimed more than three times as many victims as all the other infectious diseases put together. Speaking of bovine infection, he supported the campaign instituted by the Australian Veterinary Association for the eradication of infected animals.

Dr. M. J. HOLMES, senior medical officer of the Commonwealth Department of Health, showed that there was a pronounced death-rate from tuberculosis in young women in South Australia, rising to 96 per 100,000 in the age-group 25–29 years, compared with 60 per 100,000 for Australia as a whole and 50 in New South Wales. The mortality-rate in age-group 20–24 in South Australia (85 per 100,000) was about 40 per cent. greater than in New South Wales (51). It was thought that the high mortality in young females compared with males might be due to the stresses of child-bearing and to the strain of present-day life. In Australia, Dr. Holmes said, the bovine strain of bacillus was found only in children and not in adults. Nevertheless it probably gave rise to a considerable amount of illness and attention must be paid to its elimination. The mortality from tuberculosis of bovine origin was now very low in Australia, however, and since the deaths were almost exclusively due to the human strain, the main object must be to break the human chain of infection. Dr. Holmes thought it essential that all the activities within each State should be under the control of a

State director of tuberculosis wholly engaged on direction and coördination and given all necessary powers and facilities. The clinic system was the foundation on which all effort for the control and eradication of tuberculosis must be based. Half-measures were of little value. Notification of all forms of suspected tuberculosis, whether infective or not, was essential and must be immediately followed by administrative action. The clinic system must secure early diagnosis, and periodical examination, both physical and radiographic, should be most frequent and careful between the ages of 15 and 25. One of the greatest difficulties in the fight against tuberculosis was the maintenance of the patient's family in a reasonably good state of nutrition and in a suitable environment. The invalid pension paid was utterly insufficient, and it was urgent that some system of monetary allowance should be established which would provide adequately for the families of tuberculous civilian patients, this allowance being paid in full when the patient was under treatment either at an institution or in his own home. There was also need for accommodation for the patient who had not yet developed an active focus of disease —the child with a positive tuberculin skin reaction, who was ill-nourished or unhealthy, or the child who had to be removed for a time from a source of possible infection. Preventoria would prevent the development of fresh foci of infection in the community, and should be provided by the State.

Eradication, Dr. Holmes admitted, could not be attained without considerable expenditure. Last year 2836 persons died from tuberculosis in Australia, and the cost to the Commonwealth and State governments in pensions and in treatment was more than £1,000,000 a year. But if tuberculosis mortality had continued at the same rate as in 1880 the governmental expenditure would now exceed £5,000,000 a year, and further progress would mean further saving. "I believe," said the speaker, "that measures directed to the total eradication of the disease would cost less over the next twenty years than is spent at present in partially checking the disease." Australia's great natural advantages in climate and in a relatively high standard of living made the existing mortality-rate all the more unsatisfactory. Tuberculosis presented the best of opportunities for demonstrating the effectiveness of preventive medicine and there should be no tuberculosis in Australia.

Dr. COTTER HARVEY thought that life was being lived too strenuously by young women of the present day. For any campaign to be successful, there were four preliminary essentials: an adequate public health organisation; a recognition of the part played by the general practitioner; a careful education of the layman; and thorough instruction of the medical student in chest diseases. Adequate and decent accommodation must be available for all patients, especially those with advanced disease, and there was need for reform in what was complacently called "sanatorium treatment," which in Australia had often fallen far below modern standards. In a tuberculous household, either the infected person or the children should be removed from the home, and country preventoria should be provided on a large scale, where such children might stay for long periods. Contacts should report for examination at regular intervals, and contact examination should include all persons with whom the patient had been in close contact. Early diagnosis was a primary line of attack, and it seemed scarcely credible that in England only 12 per cent. of patients were diagnosed at an early stage. Australia could show better figures, but the medical practitioner should do more to recognise the disease early. The X ray survey of selected groups would prove to be the most profitable advance in preventive medicine, provided that the utmost care was taken in the interpretation of the films. Finally, the standard of living of the lower classes should be improved, and an endeavour made to ensure an adequate diet for all. Tuberculosis was the one disease to which a well-fed body was more resistant.

The necessity for a thorough survey of young adults in industry was stressed by Dr. J. BELL FERGUSON, director of tuberculosis control, Victoria. If we can control the spray of coughs and the spread of sputum, he said, we can control the disease. In the proposals for a national insurance system the control of tuberculosis would need to go further than the clinical care of the patient. Politicians must be made to realise that the spending of money towards eradication of the disease was a good commercial proposition.

"It is time for our profession to speak and think in terms of human welfare, rather than in terms of highly suspect figures and books," said Dr. JOHN DALE, city health officer for Melbourne. "We must make preventoria of the homes of the people." In Melbourne he knew of several hundred children living in the same houses as notified cases of tuberculosis and of scores living in hovels with patients who had tubercle bacilli in their sputum. He questioned whether the decline in the tuberculosis death-rate during the last century was due to medical effort so much as reduction in the overcrowding that prevailed after the industrial revolution.

Dr. JOHN HUGHES doubted whether preventoria for children did much to prevent tuberculosis. Nine months' holiday at the age of 12 did not do much to prevent tuberculosis occurring at 20 or later. He advocated a survey of adolescents of tuberculous families instead of surveys of groups of the population.

Dr. HARVEY SUTTON, referring to the habit of slimming, said that he had found the weight of a number of young women examined for the education department on an average 9–10 lb. less than the weight of a similar group examined in 1910. Young women 63¾ inches tall were found to-day to weigh 116 lb., whereas they should weigh 2 lb. to the inch.

SURGERY OF TUBERCULOSIS

The section of surgery met the same afternoon under the presidency of Prof. G. GREY TURNER (London), who spoke on the general principles governing surgical intervention in tuberculosis. He urged the importance of the pathological background in cases where operation might be needed. In most patients there was a focus of origin in addition to the local lesion, and this might be actually or potentially active. Hence an operation was really only an incident in the management of these cases. Time and care should be spent in preparing the patient for operation, which should not be undertaken until the general resistance was raised to the highest possible level. For the same reason special pains should be taken to avoid shock and blood loss, and a long period of convalescence was necessary in order to guard against the reawakening of some latent focus of infection.

TUBERCULOSIS AND MARRIAGE

The question whether tuberculous patients should be allowed to marry or to have children was discussed at length at the plenary session.

Dr. J. G. HISLOP said that a dogmatic answer could not be given. The main factors, so far as the female was concerned, were the length of time that arrest of the disease had been known, and the responsibilities and duties that the marriage would bring. Where tuberculous activity was present, but the infiltration not gross, he would include both sexes, and state that financial circumstances might sanction a marriage that in other circumstances one would view unfavourably. Dr. Hislop was in general opposed to marriage, but he held that when radiological and clinical tests had shown freedom from activity for two years it could be allowed. In making a decision on this point, he was swayed by the intelligence of the couple and their ability to take advice. As regards conjugal tuberculosis, his experience had been depressing, and he thought the rate of infection amongst husbands and wives has been greater than in those less dangerously placed in life. For the male marriage often led to treatment in the home, which was very unsatisfactory compared with treatment in an institution. At home there was always the tendency for the patient to over-exert himself as soon as a feeling of well-being returned. He could recall cases in which marriage was beneficial to a woman with an open lesion, but they were few and were the result of affluence and what affluence could bring. One should always hesitate before advocating marriage to a person with an open lesion, and his answer to the question whether the tuberculous patient should marry was "No," except where the possibilities of arrest of the disease were considerable. The woman with an active lesion should be advised not to have a child. It would be a potential tuberculosis patient, and might be infected by the mother in her last few months of life.

Dr. F. S. HONE said it was easy to pass legislation about the production of health certificates before marriage, but how far did that get us? It was easy also to get out of personal responsibility by discouraging marriage, but that did not help to solve the problems. In no part of the campaign against tuberculosis was the necessity greater for that slow educative struggle which everyone talked about but hated to practise. The most successful campaign would be that waged under the closest coöperation between medical practitioners and administrative officers, with the fullest consideration given to all aspects of the patient's life. The disappointment and unhappiness consequent on unwelcome celibacy might do more to lessen resistance than happy marriage under less ideal material conditions. Where a patient had shown signs of an active and possibly open infection which had retrogressed under modern methods of treatment, marriage should be forbidden for at least two years after the resumption of full work. Where there was clinical evidence of active disease with tubercle bacilli present in the sputum marriage must be forbidden until the patient had ceased to be infective, and usually until three years later.

Dr. T. G. WILSON gave a paper on the obstetric aspect, and one of the most animated discussions of the congress followed, with fifteen speakers taking part. Some considered that doctors should try to retain a hopeful outlook for a young engaged couple and not face them with a "catastrophic no," while others held that people definitely tuberculous should refrain from marriage and from having children.

THE SURGICAL SECTION

At a meeting of the sections of surgery with the sections of medicine and radiology Sir HUGH DEVINE pled for the recognition of the physiological factors involved in the treatment of *peptic ulcer*. He urged that excision or exclusion were both much better than gastro-enterostomy which was to be avoided whenever possible. Dr. O. A. DIETHELM remarked on the importance of studying the individual patient; Dr. JOHN O'SULLIVAN spoke on the radiological aspects; and Dr. JOHN KENNEDY made out a case for the treatment of massive ulcer of the stomach by temporary jejunostomy.

In the surgical section Mr. L. M. MCKILLOP read a paper on the management of large *umbilical hernia*, emphasising the importance of pre-operative preparation and recommending rectal paraldehyde as the most suitable anæsthetic. Surgeons, he said, ought to recognise that some of the enormous herniæ were not capable of cure and should not be interfered with. Mr. A. E. COATES, speaking on incisional hernia, pointed to the importance of proper choice of incisions and their suture. A paper presented on behalf of Dr. ROLAND FULTON on *strangulated hernia* gave his results over a period of 21 years at the Dunedin Public Hospital. The mortality for all cases was round about 20 per cent. which conformed with the almost universal high death-rate for these cases. He suggested that where the viability of the gut was likely to be in question laparotomy was the safest method of dealing with the emergency.

In a communication on *fracture of the pelvis* Dr. J. B. COLQUHOUN said that though he was in general agreement with the conservative treatment he believed in open operation where the acetabulum was involved and displaced.

Dr. HAROLD MOORE spoke on traumatic *rupture of the urethra* and its treatment. The figures he was able to present from combined hospital practice showed a surprising mortality forcibly illustrating the gravity of this accident. There was animated discussion chiefly on the question of catheterisation, suprapubic cystotomy, and direct perineal incision. Prof. GREY TURNER recommended the perineal operation for all cases, with suture of the roof and sides of the urethra without excision of the damaged ends and always combined with drainage from the proximal end of the urethra.

A paper on the *undescended testicle* from the point of view of a school medical officer was presented by Dr. A. MCCUTCHEON. From long-continued observation of many hundreds of boys he could say that in a great many cases of imperfect migration the testicles safely reached the scrotum as puberty approached, without any treatment whatever.

MEDICINE AND THE LAW

The Lord Chancellor's Jurisdiction in Lunacy

IN the Civil Judicial Statistics for England and Wales for 1936[1] a page is devoted to the Lord Chancellor's jurisdiction in lunacy. The number of estates under administration was larger than in 1935. As in previous years there were about 100 cases "after inquisition found" where certain high officers of State, the Lord Chancellor, the Master of the Rolls, and the Lords Justices of Appeal, have jurisdiction to protect the persons and the property of those who suffer from mental disability. This total is insignificant when compared with the thousands of cases coming under the more modern, more simple, and less expensive system of appointing a receiver to

[1] Cmd. 5560. H.M. Stationery Office. 1s.

manage the property of all persons (whether certified or not) who, through mental infirmity, are unable to conduct their own affairs. This important activity of the management and administration department of the Supreme Court is governed by rules made by the Lord Chancellor in 1934 with approval of the Treasury. Although the receivers sometimes chafe under the inevitable requirements of careful accounting for the property for which they are responsible, it is the general opinion that the department exercises a benevolent and sympathetic supervision, with due regard to the interests and welfare of the patient, over the 15,000 estates administered.

Behind these arid tables there lies a good deal of legal history. In the years after the Norman Conquest there had been some kind of struggle between the lords and the Crown for the custody of idiots, the lords having claimed wardship as in the case of infants. The statute De Prerogativa Regis, attributed by Maitland to the beginning of the reign of Edward I, show the King winning. It is said that Robert Walerand, a minister, justice, and Royal favourite, procured the change, knowing that he must leave an idiot as his heir and preferring that his lands should fall into the hands rather of the King than of his lords. The Lunacy Act of 1890 defines a lunatic as including an idiot; but in the early days a distinction is carefully drawn. The Statute of the King's Prerogative gives the King the custody of the lands of idiots, therein described as "natural fools" (*fatui naturales*), the King to have the profits without waste or destruction, to find the idiots their necessaries and, after their deaths, to hand their property back to their right heirs. The Statute deals separately with the lunatic whom it describes as anyone who formerly had his wits and memory and now is *non compos mentis sue*, "as certain persons are during lucid intervals" (*lucida intervalla*). The Statute entrusted to the King the duty of seeing that the lunatic's lands and tenements be safely kept without waste or destruction, the lunatic and his household being "maintained competently," and the residue of his property being preserved for his use in case he should recover his right mind; if he died without recovery, the residue was to be distributed for the good of his soul "by the advice of the ordinary." In the case of the idiots, therefore, the King took their income; in the case of the lunatics, he was merely a trustee. Research shows that the distinction presently lost its value because juries, with their excellent habit of mitigating the asperities of the law, obstinately returned verdicts of *non compos mentis* rather than of idiocy. After the Revolution it became the practice of the Crown to hand over to members of an idiot's family any surplus profits of his estate. The Statute of the King's Prerogative is the foundation of the Crown's jurisdiction in lunacy. The Lord Chancellor has exercised this not because he was head of the Court of Chancery but because he was the delegate and representative of the Sovereign. On being appointed to his office, the necessary authority was delegated to him under the sign manual: thus he obtained custody of lunatics and their estates. Once the custody was granted, the Lord Chancellor proceeded under his general power as keeper of the King's conscience. In 1842 he was authorised by statute to appoint two fit persons (serjeants-at-law or barristers of ten years' standing) as Commissioners in Lunacy. Three years later the title of Masters in Lunacy was substituted. The Masters and Assistant Masters have authority by modern statute to exercise the administrative power of the Judge in Lunacy. The Mental Treatment Act of 1930 largely eliminated, for excellent reasons, the word "lunatic." We still need some euphemistic substitute for the expression "jurisdiction in lunacy."

Official Shorthand Writers in the Courts

The introduction of an official service of shorthand writers in the King's Bench and Chancery Divisions at the Law Courts is likely to make little change to a medical witness giving expert evidence in an important case. When he has done so in the past, the parties have probably arranged for a shorthand note to be taken at their own expense. The change now being experimentally operated is the provision of stenographers to take a note at the public expense. The cost of the transcript will be part of the "costs in the cause." Critics have objected that the services of stenographers (including the provision of transcripts) should be regarded as part of the overhead expenditure of the administration of justice and that the unsuccessful party should not be made to pay for this any more than for the lighting and heating of the court. Legal reforms, however, must be expected to proceed by stages.

The genesis of the new plan is a recommendation of the Royal Commission on the Despatch of Business at Common Law, presided over by the late Lord Peel. Its report, issued last year, recommended that official shorthand writers should be supplied "so far as practicable" in *nisi prius* cases. The reform, be it noted, is not primarily in the interests of the public or the parties or the witnesses but for the purpose of saving judges' time. The Lord Chief Justice told the Royal Commission that, if the judges could be spared the mechanical labour of taking a long-hand note of the evidence, the economy in judicial time would be the equivalent of the appointment of an additional judge. The Peel Commission realised that the judge will still have to take some kind of note. If he has to sum up to the jury on evidence and arguments heard during the same day, no shorthand transcript will be available for him. The change should mean, however, that the judge will have more leisure to study the demeanour of the witnesses. Some judges are believed to hold the view that it will assist the discovery of truth by giving the witness less time to think of his next answer. The system of official shorthand writing has been in operation at assizes and quarter sessions for some thirty years since transcripts of the evidence and the judge's summing up (though not of counsel's speeches) are required by the Court of Criminal Appeal. This, by the way, is one of the practical reasons (quite apart from the statutory prohibition under a half-obsolete enactment of Henry VIII) why the Welsh language cannot be used before tribunals like, for instance, the Carnarvonshire quarter sessions, where it is likely that the accused persons, the jury, the bench, and the bar are all familiar with it. There is a dearth of bilingual stenographers; and, even if the evidence were taken down as spoken in Welsh, it would still have to be translated for the benefit of the judges in the Court of Criminal Appeal.

PRINCE OF WALES'S HOSPITAL, PLYMOUTH.—The deficiency on the maintenance account of this hospital is £31,642 and an additional annual income of £16,000 is needed. There is no money to pay the bills due this month, and, since the number of subscribers is not increasing, wards may have to be closed. A meeting between the city council and representatives of the hospital has been held and negotiations are proceeding for a grant-in-aid from the Devon and Cornwall county councils.

LONDON MEDICAL EXHIBITION

THIS exhibition, exclusively for the medical profession, opened on Monday last in the New Horticultural Hall in Greycoat-street, Westminster, and will remain open until Friday, the 22nd, at 6.30 P.M. We have made notes on a few of the many thousands of preparations and instruments exhibited at the stands, concentrating on those which have been produced since the exhibition of last year.

Drugs and Pharmaceutical Preparations

(101) ABBOTT LABORATORIES (ENGLAND) LTD. (52A, Wigmore-street, W.) presented Nembutal, the well-known sedative, with its powerful hypnotic and prolonged sedative action, and a new barbiturate for intravenous injection, Pentothal Sodium, which closely approaches the qualities of a controllable anæsthetic.—(90) ALLEN AND HANBURYS LTD. (Bethnal Green, E.) showed, among a wide range of preparations, A.B. Protamine Insulin (with zinc) Suspension, the low solubility of which, they claim, prolongs lowering of blood-sugar and so reduces the frequency of the injections; Antihæsin, a mixture of organic solvents for easily removing adhesive plaster; and elixir of ammonium mandelate for the treatment of urinary infections. They have introduced a range of pastilles, soap, and mouth-wash containing Lysantol, a powerful non-poisonous antiseptic; and Prolactin, a standardised solution of anterior pituitary principle for disorders of lactation.—(67) ANADIN LTD. (12, Chenies-street, W.C.) exhibited anodyne tablets containing four ingredients, acting in combination to provide effective and harmless relief.—(100) THE ANGIER CHEMICAL CO., LTD. (86, Clerkenwell-road, E.C.), showed their two old-established preparations, Angier's Emulsion and Sagradol laxative emulsion, a highly miscible palatable emulsion with cascara.—(116) ANGLO-FRENCH DRUG CO., LTD. (11 and 12, Guilford-street W.C.), had on view their organic combination of iodine and hamamelidin, Iodamelis, the indications for which are diseases due to faulty circulation and nutrition. Their Pantavene, which they recommend for asthenia and debility, is an extract of the active principles of oats in tablet form.—(19) ANTIBODY PRODUCTS LTD. (Watford, Herts) displayed the oral form of their well-known Antibacsyn, a suspension of euglobulin extracted from ox serum; their range of air-borne dust protein extracts for skin tests and treatment of asthma; and extracts of British grass pollen for hay-fever.—(80) ANTIGEN LABORATORIES (95, Great Portland-street, W.) offered their visitors Ruthmol, a chloride-free table salt prepared from citrates, formates, and small quantities of phosphates. They also exhibited Pan Vax, an anti-virus ointment with vitamin D for external application to suppurations and wounds; and anti-influenzal and common cold prophylactic vaccine, three doses of this vaccine being packed in each vial for a reasonable price. They stressed particularly their laboratory service.—(7) ARMOUR LABORATORIES (Armour House, St. Martin's-le-Grand, E.C.), presented a new method of administering glandular substances. Their preparations, which have the whole lipoid content intact, are presented in a fused elastic air-tight capsule; this protects the compound against oxidation and loss of potency. They also showed Suprarenal Concentrate capsules, each containing two grains of gland concentrate for the treatment of all forms of allergy; and their Liver Concentrate capsules, which they claim to contain the highest concentration of liver obtainable.

(44, 58) BAYER PRODUCTS LTD. (Africa House, Kingsway, W.C.) emphasised the value of Betaxan, a synthetic antineuritic vitamin, 1 mg. of which contains 500 international units, for the treatment of all forms of avitaminosis B_1. It is packed in 1 c.cm. ampoules for intramuscular injection daily for several weeks. The makers claim that it is the first synthetic vitamin B_1 preparation. Manetil, a biological extract of spinal cord for the treatment of hæmorrhage, was on view; it is claimed to have a specific effect on bleeding time as opposed to coagulation, and is therefore recommended for prophylactic use.—(5) BENGUE AND CO., LTD. (24, Fitzroy-street, W.), displayed samples of Nestosyl antiseptic and nasal preparation in ointment, oily solution, suppositories, and ovules; Permyase, a preparation of the secretion of the maggots of *Lucilia sericata*, a blue-bottle fly, the principle underlying the beneficial action of maggots in infected wounds; and Noseptyl, an ephedrine nasal jelly. They also showed their ethyl chloride in a patent ampoule with spray stopper.—(87) BISODOL LTD (12, Chenies-street, W.C.) stressed the importance of their product Bisodol, an antacid digestive containing diastase and papain.—(37) BOOTS PURE DRUG CO., LTD. (Nottingham), exhibited, in addition to their many interesting and useful pharmaceutical products and sterilised surgical dressings, Ferosan (ferrous chloride capsules) for the treatment of iron deficiency anæmias; Supersan, a safe, non-poisonous, and non-irritant antiseptic for all purposes; Sulphanilamide-Boots (*p*-aminobenzenesulphonamide), issued in tablets for oral administration; and a new gonad-stimulating hormone prepared from human pregnancy urine called "Physostab," for the treatment of conditions associated with anterior pituitary and ovarian dysfunction. Other hormone preparations which they have recently introduced are "Antostab," a follicle-stimulating gonadotropic hormone prepared from pregnant mares' serum; and "Ovostab," an oily solution of pure crystalline œstradiol benzoate.—(57) BRITISH ALKALOIDS LIMITED (Winchester House, E.C.) exhibited their T.C.P. products: a general antiseptic, a medicated soap, ointments, bronchial antidote, colloidal emulsion (a non-toxic intestinal antiseptic), and pastilles.—(156) BRITISH COD LIVER OIL PRODUCERS (HULL) LTD. (St. Andrew's Dock, Hull) again presented their SevenSeaS palatable cod-liver oil, in "standard" and "high potency" strengths. The "standard" they produced to conform with the B.P. standard: to the "high potency" they assign four times the standard strength. They declare that their product is exceptionally fresh, palatable, and free from after-taste because of their special methods of processing and handling.—(140) BRITISH DRUG HOUSES LTD. (Graham-street, City-road, N.) had on view Anahæmin B.D.H., a liver preparation for which they claim outstanding hæmopoietic power. They recommend Sulphonamide-P B.D.H. for infection with hæmolytic streptococci and for prophylaxis; it is also available in tablets. Their Mandelix, a preparation of ammonium mandelate, has long been used for urinary infections, and they have now introduced Mandecal, a preparation of calcium mandelate which is pleasant to take and non-nauseating.—(114) BURROUGHS WELLCOME AND CO. (Snow Hill-buildings, E.C.) showed their usual comprehensive range of products, among the more recently introduced being Tabloid Sulphonamide-P and Wellcome Sulphonamide-P for the treatment of hæmolytic streptococcal and other infections. The bactericidal power of the blood after treatment was demonstrated by charts. They offered "Wellcome" Protamine insulin (with zinc) suspension as an alternative to "Wellcome" insulin, claiming for it a more prolonged action. Special attention was drawn to "Stypven" Russell viper venom, which they put forward as the most effective local hæmostatic available. Ryzamin-B concentrate of rice polishings, a clear golden-brown syrupy preparation, standardised to contain 50 international units of vitamin B_1 per gramme, they recommended as a palatable and convenient means of supplying vitamin B.

(1) G. W. CARNRICK CO. (Brooks and Warburton Ltd., 232–240, Vauxhall Bridge-road, S.W.) exhibited Hormotone T, which includes the follicular hormone and is used orally; also their well-known Incretone, a physiological combination of the endocrine glands.—(3) THOS. CHRISTY AND CO., LTD. (4/12, Old Swan-

lane, E.C.), had on show their disinfectant Lysoform and their Histoplast vaccine plaster for boils and pimples. They also displayed their preparations Glyco-Thymoline, Tussipect syrup for coughs, and Estivin, a local remedy for hay-fever.—(13, 14) COATES AND COOPER LTD. (94, Clerkenwell-road, E.C.1) made a specialty of their Pankreon tablets and powder, containing trypsin, diastase, and lipase from fresh pancreas, for the treatment of digestive disturbances; and also their hæmostatic preparation Sangostop, a non-toxic vegetable preparation for oral use or injection, free of albumin. They also showed samples of Forapin bee venom, which they now prepare in ampoules for injection.—(162, 163) CONTINENTAL LABORATORIES LTD. (30, Marsham-street, S.W.1) recommended their new sedative Serenol as a palatable and non-toxic liquid containing ephedrine, thyroid, and hexamethylenetetramine; in addition to Taxol their biological laxative, Antipeol, an immunising vaccine filtrate for wounds, and their usual range of biological products.—(117, 118, 136, 137) CROOKES LABORATORIES (Park Royal, N.W.) emphasised the value of the new Sulphanilamide spray for streptococcal infection of the throat, and Sulphanilamide ointment for acne and other staphylococcal infections of the skin. Their Tri-antiseptic with a Rideal-Walker coefficient of 6 contains three antiseptics (xylol and two proprietary compounds) forms a colloidal emulsion with water, and effectively sterilises hands and instruments. Other striking preparations were their halibut oil ointment for inflammatory conditions of the skin, and glucose food containing vitamins B_1 and D.

(97) J. C. ENO LTD. (Pomeroy-street, S.E.) again reminded visitors of their traditional fruit salt and its tonic mildly laxative and cathartic properties which have made it familiar throughout the world.—(149, 150, 160) EVANS SONS LESCHER AND WEBB LTD. (56, Hanover-street, Liverpool) showed their Streptocide ointment for the topical application of sulphanilamide which contains, by means of a special solvent, 5 per cent. of *p*-aminobenzenesulphonamide. Also Percalcin, a concentrated solution of calcium combined with mixed acids derived from glucose; it is claimed to be two and a half times as strong as any of the available calcium gluconate solutions. They drew special attention to their wide range of antiseptics and vaccines.—(70) FASSETT AND JOHNSON LTD. (86, Clerkenwell-road, E.C.) displayed their familiar range of Seabury and Johnson's surgical dressings and Mead's plaster, Antikamnia analgesic tablets, Howard's Quinisan tablets and Argyrol silver vitellin. "Mission" fruit juices and Welch's grape juice were also to be seen and tasted at this stand.—(10, 11) GENATOSAN LTD. (Loughborough) drew attention, among their wide range of exhibits, to Genora, an oral vaccine for the prevention of colds and influenza, which contains hæmolytic streptococci and other organisms. They claim that it also confers immunity to other diseases caused by streptococci. They showed their Genozo tooth paste, which contains an emulsion of detoxicated mouth organisms; their stabilised calcium aspirin, and Genasprin. Samples of a new series of products named Fissan were also on view; they are for use in skin therapy and have a base of colloidal milk albumin.—(95, 96, 109) GLAXO LABORATORIES (Greenford, Middlesex) introduced for the first time their Examen liver extract, which they declare to be the most powerful parenteral liver extract ever manufactured on a large scale. Each 2 c.cm. ampoule is said to contain the active hæmopoietic factor of 100 g. of fresh liver. They reminded visitors of their dissolved vaccines G.L., in which the bacterial cells are in solution and the total antigens are thus immediately available for antibody production; the toxicity is low and a full dose can be given from the start without fear of a toxic reaction.

(121) C. J. HEWLETT AND SON LTD. (35/42, Charlotte-street, E.C.) showed their ampuliques, containing a large selection of single doses of sterilised injections. They recommended the chemotherapeutic compound, P.A.B.S. (para-animo-benzene-sulphonamide), for puerperal sepsis and other hæmolytic streptococcal infections; and also an orange-flavoured syrup containing mandelic acid for urinary infections. A new feature of their stand was the Physician's Bag, which is their "Complete G.P." bag enriched by a miniature sphygmomanometer and an auriscope.—(110) THE INHALATION INSTITUTE LTD. (87, Eccleston-square, S.W.) demonstrated once more their apparatus for drug inhalation therapy including the Humphris Collison radium emanation inhaler for administering oxygen activated by radium emanation.—(166) KAYLENE LTD. (Waterloo-road, N.W.), in addition to their existing kaolin preparations, showed their Kaylene opaque meal and Kaylenema for radiologists, and Magsorbent granules of magnesium tri-silicate with glucose for children suffering from ketosis and acidosis; also their Magsorbent powder and tablets, the original magnesium trisilicate for gastric ulcer and acid dyspepsia.—(119) LACTEOL BRAND PRODUCTS (DR. BOUCARD) (55, Welbeck-street, W.) again showed their wide range of lactic acid antiseptic preparations in tablets, ovules, liquid, suppositories, and other forms, and their oral polyvalent broth vaccine Vaxa, and Termosan solid non-greasy embrocation stick for aches and pains. Their Viatol Vitamin B tonic was also on view in tablet form.—(6) ELI LILLY AND CO., LTD.) (2, 3, and 4, Dean-street, London, W.), displayed Entoral, an oral vaccine for the prevention of common colds, containing killed pneumococci, streptococci, *M. catarrhalis* and *B. influenzæ;* They also offered a wide range of undenatured bacterial antigens.

(148) MENLEY AND JAMES LTD. (64, Hatton-garden, E.C.) have long marketed their Benzedrine inhalant for coryza and sinusitis, and now showed Benzedrine tablets, a sympathomimetic compound for neurological and functional nervous disorders.—(101) E. MERCK (60, Welbeck-street, W.) exhibited a cardiovascular tonic (Ephetonin Comp. Liq.) synthesised from ephetonin for cardiac insufficiency and cardiovascular disorders; and Doryl tablets, ampoules, and solutions, a choline derivative for post-operative retention of urine, colonic stasis, anxiety states, and tachycardia.—(103) H. R. NAPP LTD. (3 and 4, Clement's Inn, W.C.) featured Sedonan analgesic and antiseptic eardrops for otitis media; Hepamult preparation of liver in the form of concentrated granules at a low price, and Ferro-hepamult, the same preparation containing active iron.—(120) OPPENHEIMER, SON AND CO., LTD. (Handforth Laboratories, Clapham-road, S.W.), showed their wide range of bi-palatinoids; Ioxantin, a diuretic and cardiac and respiratory stimulant which is a compound of dimethylxanthin sodium salicylate with Alphidine, the non-toxic modification of iodine, which they recommend for all applications of iodine therapy. They stress the combined treatment with Alphidine Pancreatin for thyrotoxicosis states; and potassium permanganate combined with iron and arsenic for furunculosis.—(33) ORGANON LABORATORIES (1, Gordon-square, W.C.) displayed synthetic testosterone propionate Neo-Hombreol, and Binæmon tablets of liver extract and hogs' stomach in a highly purified form to minimise the dosage. Pernæmon Forte liver extract for intramuscular injection, purified to a light straw-coloured fluid, was also a striking feature. Kolpon vaginal tablets, containing œstrone at the hydrogen-ion concentration found to be the most effective against vaginal and vulvar infections; and Menformon in oil solution for oral administration, packed in a dropping bottle were other noticeable exhibits.—(73) OXO LIMITED (Thames House, Queen Street-place, E.C.) showed their well-known range of beef extract and essence, and biological preparations, Antoxylin (S), an anterior pituitary-like hormone for pregnancy diagnosis; Oxoid brand Œstrin, an oily solution of œstradiol monobenzoate; and Liveroid liver preparation.

(64) PARKE, DAVIS AND CO. (Beak-street, W.) offered an interesting range of exhibits, including a preparation of vitamin A and vitamin D named Nadola. The vitamin-D content is derived from a

mixture of halibut-liver oil and tuna-liver oil, the high potency of these oils enabling the makers to obtain the ideal ratio of 10 parts A to 1 part D. They also showed Gluco-Fedrin, a local preparation for catarrh, containing ephedrine in a dextrose solution.—(75) PETROLAGAR LABORATORIES LTD. AND JOHN WYETH AND BROTHER LTD. (Oldhill-street, N.) specialised in Neobovinine 20, a reconstructive tonic, and Plastules Hæmatinic Compound of ferrous sulphate and concentrated yeast in a gelatin capsule disintegrating in the stomach, to provide ferrous iron in a soluble form. This is prepared in two varieties, plain, and with liver extract. Wyeth's Amphoteric Gel, a palatable cream containing 5 per cent. of colloidal aluminium hydroxide for removing hydrochloric acid from the stomach in hyperchlorhydria and gastric ulcer was on view. Also to be seen was Picragol, silver picrate dispersed in kaolin for the treatment of trichomonas and other vaginitis.—(98, 99, 108) PHARMACEUTICAL SPECIALITIES (MAY AND BAKER) LTD. (Dagenham, London) last year showed their Proseptasine, a colourless oral preparation of sulphonamide for streptococcal infections. This year they also recommended it for *B. coli* infections, and added to their range Soluseptasine, a similar compound for any form of injection. This they maintained to be the only colourless injectable sulphonamide, and they state that these compounds are comparatively non-toxic in ordinary therapeutic doses. They also showed their well-known sedative Soneryl in suppository form.

(71) ROCHE PRODUCTS LTD. (51, Bowes-road, N.) featured Navigan travel-sickness remedy and antispasmodic sedative, containing one part of Syntropan, a synthetic analogue of atropine, and five parts of mild pyridine derivative; and two synthetic vitamin preparations: Redoxon Vitamin C (and also Redoxon Forte, five times the strength) and Benerva Vitamin B_1.—(147) SANDOZ PRODUCTS (J. FLINT) (134, Wigmore-street, W.) featured their well-tried preparation Femergin, a chemically pure preparation of ergotamine tartrate, a powerful uterine hæmostatic and, through its inhibitory action on the sympathetic nervous system, a valuable specific for migraine and thyrotoxicosis and tic douloureux. It is associated with Bellafoline, a preparation of the total natural alkaloids of belladonna leaves, in Bellergal, a sedative with a powerful action on the autonomic nervous system.—(27-29) SAVORY AND MOORE LTD. (143, New Bond-street, W.) and WM. MARTINDALE (75, New Cavendish-street, W.) showed a wide range of the vitamin preparations of E. R. Squibb and Sons, including Rayolex tablets of fish liver oil containing 3300 units of vitamin A and 660 of vitamin D; and Cardiazol, a synthetic preparation which they claim to be superior to adrenaline for failure of the peripheral circulation and acute cardiac insufficiency. Samples of non-staining ether-soluble tar paste, E.S.T.P., were also on show.—(25a, 26) SCOTT AND BOWNE LTD. (10, Stonecutter-street, E.C.) claim to have invented a most convenient method of administering halibut-liver oil: in a sugar-coated pill containing two drops of pure oil; and in their Halivite, in a self-dropper bottle for infants. That well-tried product, the first of all vitamin oil preparations, Scott's Emulsion, was exhibited.—(47) SCHERING LTD. (185-192, High Holborn, W.C.) stressed the importance of Folinerin, a cardiac stimulating glucoside from *Nerium oleander*, which they claim to be as effective as digitalis, and to have the advantage of a smaller molecule and therefore more absorption and more complete elimination; also their Proviron and Testoviron hormone preparations for sexual deficiency in the male. Petëin is a detoxicated vaccine containing 60 different strains of *B. pertussis* in a concentration of 20,000,000,000 per c.cm.—(164, 165) SHARP AND DOHME LTD. (Mulford Biological Laboratories) (76-78, City-road, E.C.) displayed Topagen, a bacterial antigen for *B. pertussis* for nasal application; Vacagen, a respiratory mixed bacterial antigen for oral administration; also Propadrin hydrochloride for allergic bronchial spasm, and Propadrin hydrochloride nasal gel and solution.—(155) WILLIAM R. WARNER AND CO., LTD. (Power-road, Chiswick), again showed their Veracolate cholagogue tablets and their Anusol in ointment form as well as in the familiar suppositories.

(*To be continued*)

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Comdr. J. F. Pace retires at own request with rank of Surg. Capt.

Surg. Comdr. Pace has been 22¼ years in the Navy, and during the War served at Malta Hospital and in H.M.S. *Hercules* in the Grand Fleet. Since then he has served in China and the Mediterranean. For the last five years he has been at the Anti-gas School at Portsmouth and the Chemical Defence Experimental Station at Porton, where he has been in charge of the physiological department.

Surg. Lts. R. T. May to *Drake* for R.N.B. and to *Norfolk*; W. H. E. McKee to *Cricket*; M. F. Sheehan to *Drake* for R.N.B. and to *Birmingham*; and D. W. Pratt to *President* for course.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Lts. W. G. McLean, M. P. Reddington, P. B. Moroney, and R. S. Rudland promoted to Surg. Lt.-Comdrs.

P. C. Barkla (proby.) to *Sheffield*.

ARMY MEDICAL SERVICES

Maj.-Gen. D. S. Skelton, C.B., D.S.O., late R.A.M.C., retires on ret. pay.

Col. J. N. Thomson, D.S.O., M.C., on ceasing to be empld. is placed on the h.p. list.

Col. E. M. Middleton, O.B.E., late R.A.M.C., having attained the age for retirement, is placed on ret. pay.

Lt.-Cols. to be Cols.: C. L. Franklin, M.C., and J. J. D. Roche from R.A.M.C.

Col. R. C. Priest, M.D., F.R.C.P., K.H.P., late R.A.M.C., to be Maj.-Gen. (supy.), and retains his appt. (*Vide* THE LANCET, Oct. 2nd.)

ROYAL ARMY MEDICAL CORPS.

Lt.Col. J. M. Elliott retires on ret. pay.

Maj. H. E. P. Yorke, M.C., is placed on the h.p. list on account of ill-health.

Majs. to be Lt.-Cols.: J. R. Hayman, R. H. Leigh, M.C., and G. G. B. Holroyde, M.C. These three officers are serving at Belfast (D.A.D.M.S.), Devonport, and Cairo respectively.

REGULAR ARMY RESERVE OF OFFICERS

Col. J. D. Richmond, D.S.O., O.B.E. (late R.A.M.C.), and Lt.-Col. C. Scaife, having attained the age limit of liability to recall, cease to belong to the Res. of Off.

Capt. J. B. Cargin resigns his commn.

SUPPLEMENTARY RESERVE OF OFFICERS

Lt. A. N. Fergus to be Capt.

TERRITORIAL ARMY

Lt.-Col. C. A. Webster, T.D., to be Bt.-Col.

Maj. H. A. B. Whitelocke, from T.A. Res. of Off., to be Lt.-Col. and to comd. the 3rd (Southern) Gen. Hosp.

Capt. L. P. Marshall, M.C., to be Maj.

Lts. A. R. Bowtell and P. T. Cooper to be Capts.

ROYAL AIR FORCE

Squadron Leader S. B. S. Smith to Headquarters' Bomber Command, Uxbridge, for duty as medical officer.

Flight Lt. F. W. P. Dixon, M.B.E., to Central Medical Establishment, London.

The undermentioned Flying Offrs. are promoted to the rank of Flight Lt.: D. J. Dawson and N. P. Rutherford Clyde.

L. L. Ingram is granted a short service commission as a Flying Officer for three years on the active list, and is seconded for duty at the Miller General Hospital.

Dental Branch.—Flight Lt. O. F. Brown to R.A.F. Station, Andover.

Flying Offrs. promoted to rank of Flight Lt.: A. C. Wilkie, C. H. Beamish, and E. Martin.

POST-GRADUATE LECTURES

CONTINUING our series of post-graduate lectures delivered at London teaching hospitals at the opening of the session we publish this week summaries of those given by Dr. Shirley Smith at Charing Cross and Dr. Hilton at University College Hospital.

HEART ATTACKS

(DR. SHIRLEY SMITH)

SYMPTOMS related to the heart cause more anxiety than any others. One reason for this is that heart troubles are linked inseparably with the idea of sudden death in the minds of most people. And, in fact, sudden deaths are generally due to cardiac seizures. The series of events that is described by a patient as a heart attack may be anything from a brief bout of simple tachycardia to a major thoracic emergency. The diagnostic difficulties are magnified by the fact that the whole or part of the attack may be over by the time the physician arrives. The central feature may be pain either slight or so severe that it seems directly to threaten life. Other seizures are painless and have as their principal elements breathlessness, faintness, or palpitation. In any case the patient is likely to interpret his malady either as a rehearsal for sudden death or at best a prelude to a "painful illness bravely borne."

Complaints of attacks of pain in the chest usually raise the same problem: is the pain due to coronary artery disease or is it of cardiovascular origin and yet of benign type (left mammary pain)? Here are the principal points in the differential diagnosis:—

	Left inframammary pain.	*Effort angina.*
Site of pain	At or below left breast	Usually retrosternal.
Type of pain	Aching, pricking, stabbing	Oppressive, constricting.
Radiation	To angle of left scapula and left arm	To left arm, both arms, or throat.
Relation to effort	No definite relation	Obvious.
Relation to rest	No direct relation	Relieved in a minute or two.
Response to trinitrin	Usually none	Usually swift.
Pulse	Increased rate	Rate little altered.
Respiration	Often rapid and irregular	Pain may impede breathing.
Associated symptoms	Local hyperæsthesia, palpitation, faintness, trembling, weeping in or after attack	No local hyperæsthesia, usually no complaint of other symptoms. Faintness or sense of dying uncommon.
Prognosis	No risk of death or disablement	Risk of death is risk of acute coronary occlusion.

Pain of coronary origin will belong to one of the following categories: (i) effort angina, (ii) spasmodic angina, (iii) angina decubitus, (iv) cardiac infarction. Remember that many patients fail to distinguish between pain arising in the chest *during* exertion and pain experienced during the fatigue that follows exertion; in the first case the pain is almost certainly angina of effort, in the second it is almost as certainly not. The pain of effort angina may appear first in a part to which it often spreads; many patients with pains in the arms have been wrongly classed as rheumatic until the relationship to walking was established. Pain radiating to both arms is pathognomonic of an organic cause, but pain radiating to the left arm only is not. Paroxysms of pain bearing the stamp of a coronary source may occur apart from exertion and in relation to food, tobacco, excitement, anger, or sudden changes of temperature. The term "spasmodic angina" is sometimes applied to these attacks. Angina decubitus, or anginal pain awaking the patient from sleep, is rare except in patients who suffer from effort angina, and in many cases is the forerunner of coronary thrombosis. If in coronary occlusion the pain is in the epigastrium it may suggest an acute lesion in the upper abdomen; pulse irregularity, respiratory distress, and certain electrocardiographic changes all point to an "acute thorax" as opposed to an "acute abdomen." The distinction from pulmonary infarction may be far from easy, as fever, pain, and respiratory distress with collapse are common to both conditions. Hæmoptysis, the development of signs in one lung, and radiographic examination at the bedside may combine to indicate the true state of affairs.

Paroxysms of dyspnœa due to heart disease are to be distinguished from those due to bronchial asthma. Wheeziness suggesting the latter commonly occurs in cardiac asthma. Differentiation is not usually difficult if it is remembered that bronchial asthma rarely starts after the fifth decade, that cardiac asthma is usually accompanied by definite signs of cardiovascular disease (often hypertensive), and that exertional dyspnœa has generally been noticed before the onset of nocturnal attacks. Moreover, an attack of cardiac asthma is often prolonged for an hour or more, producing a more serious degree of illness. Still more alarming is the overwhelming bout of dyspnœa that may come as a bolt from the blue and develop into acute pulmonary œdema; large quantities of frothy fluid may pour from the mouth and death may seem to be at hand. Such seizures may be due to coronary thrombosis or other causes of acute failure of the left ventricle. Oxgyen, adrenaline, and morphia are effective remedies; venesection is sometimes a life-saving measure in the more severe cases.

The benign form of respiratory derangement known as suspirious is at times accompanied by a sense of dying that causes great alarm to the patient. The usual complaint is of a suffocating sensation and inability to take a full breath. It is caused by irregular action of the diaphragm which from time to time makes a full contraction, a sighing respiration resulting. Anxiety is a common cause of this disorder which is commonest in women in the first half of life, is benefited by exercise, and often completely relieved by sodium phenobarbitonum.

Syncope of the vasovagal type (common fainting attack) is easily recognised at the time by the pallor, slow pulse, and low blood pressure. In retrospect the determination may not be so easy; the onset is often with uneasiness in the abdomen, while shock, or pain or surprise frequently precipitate the attack. No vertigo or precordial distress is noticed, but it should be remembered that in the common "faint" a patient will often make slight clonic movements of the arms or body. Vasovagal attacks may occur in the elderly and in convalescents, particularly in any circumstances which express blood from the splanchnic area. Such a bout of syncope after defæcation may cause much alarm.

Transient faintness or actual syncope is sometimes a manifestation of one or other form of heart-block. The clinical examination then will usually reveal signs of heart disease and bradycardia. Electrocardiography will give conclusive evidence. Sub-

cutaneous injections of adrenaline will usually decrease the frequency of Adams-Stokes attacks. If these seizures appear to threaten life a syringe of adrenaline hydrochloride 1/1000 solution should be kept at hand for intravenous or even intracardiac injection.

Most attacks of palpitation are due to simple acceleration or augmentation of the regular heart beats. Records of the heart-rate during the development and the defervescence of the attack will then show gradations of rate perhaps between 140 and 90. The cessation of an attack is more easily observed than its inception, and such an opportunity is invaluable for differential diagnosis. A bout of paroxysmal tachycardia must end abruptly since there can be no gradations between normal and ectopic rhythm; the rate must therefore also drop abruptly. Simple or nervous tachycardias require treatment in so far as the underlying cause has to be remedied. Attacks of paroxysmal tachycardia (in which the rate is usually more than 150) are in a few cases dramatically ended by digital pressure along the carotid artery on the right or left side for 15–60 seconds. In most cases that resist this treatment the attack comes to a natural close in the course of a few hours, with or without the help of morphia. Paroxysms of auricular fibrillation are easily recognised at the time by the observance of irregular rhythm often at the rate of 130–150. Electrocardiography in the attack (as in paroxysmal tachycardia) immediately gives an exact diagnosis. Such bouts of fibrillation usually cease spontaneously after several hours but the restoration of normal rhythm with quinidine may become necessary.

RESPONSE OF CERTAIN BONE DISEASES TO RADIOTHERAPY

(DR. GWEN HILTON)

IN speaking of radiotherapy one must distinguish between two purposes of its use: firstly, the symptomatic—that is, chiefly for the relief of pain—and secondly, the radical use, which attempts to cure the disease. In metastatic growths, for example, radiotherapy is used symptomatically. Bone metastases are common in carcinoma of the breast and other organs, and the pain they cause is often so severe that it cannot be relieved even with morphia. X ray therapy, however, will nearly always relieve it. Calcification is produced, and where the metastasis has caused a fracture the fragments usually unite, thus perhaps giving the patient several more useful, or at any rate painless, years of life.

This healing process is shown in the films of the four cases I will now demonstrate. The first is that of a woman who when first seen was bed-ridden and apparently dying, with a history of tumours in both breasts for a year, and severe pain in the right hip for a month. The neck of the femur had fractured through the secondary deposit. Nevertheless, X ray therapy relieved the pain within three months, and calcification took place in the tumour area. The primary growth was also treated, and as a result the patient is still alive, and has had four years of healthy activity free from pain. Of the other three cases I have shown you, the secondary deposits came from carcinoma of the breast in two, and of the thyroid in one. They all became free from pain within 6–8 weeks of the beginning of treatment, and their lives have been prolonged. Such cases are typical rather than isolated. If there is only one secondary deposit and the patient is not moribund, the result is fairly certain. In my opinion, no person suffering from unrelieved pain from secondary growths should be deprived of this alleviation.

X ray therapy relieves the pain in multiple myelomatosis. There is, however, no change in the radiogram after irradiation. The punched-out rarefied areas remain the same size, and no calcification is discernible. In the case of numerous deposits, it is, of course, impossible to treat all, for they are usually spread throughout the body, both in the bones and sometimes in the soft tissues. X ray therapy has no effect on the course of the disease; the relief of pain, however, in itself justifies X ray treatment. For the same reason, radiotherapy is indicated in osteo-arthritis when the pain does not yield to simpler measures. The treatment does not change the X ray picture or, indeed, alter the stiffness, but the pain is often relieved in a remarkable manner, especially in cases of recent origin.

Let us now consider the radical use of radiotherapy in *osteogenic sarcomata*. I will first show you the films of three cases of the *osteolytic* form before and after therapy. Symptoms had been present several months before treatment. The pain began to be relieved in about three weeks. As you will see, calcification has taken place, and now no symptoms or signs remain. These patients have lived seven, three, and two years respectively without any sign of recurrence. The other films illustrate two cases of the *osteoblastic* form. This, as you know, is one of the deadliest of the sarcomata. This X ray appearance is usually incompatible with a life of longer than nine months. These two patients are healthy, and have lived so far four years and two and a half years without sign of recurrence. The last films I will show you in this series illustrate a case of Ewing's sarcoma, which is one of the most radio-sensitive of the growths of bone.

We will now turn to the *osteoclastomata*. Some authorities think that there are two forms of osteoclastomata, the trabecular and the osteolytic type. Other authorities consider that the latter variety is merely a more advanced stage of the former. The radiogram of the osteolytic type shows, as you will see, a rarefied area encroaching on both shaft and epiphysis. No trabeculæ traverse this area. In some cases a thin shell of bone surrounds it, though this is often missing.

It is the osteolytic type which shows this satisfactory response to X ray treatment. The rarefied area increases in size for at least eight to twelve weeks after irradiation. This is due to the initial increase of blood-supply caused by the treatment, which leads at first to further decalcification, and, therefore, to an increase in size of the rarefied area. It is important to remember this, for otherwise it might be thought that the tumour was rapidly growing. Small islands of calcification are then noted, which gradually increase until there appears to be a slight haze throughout the rarefied area. Later trabeculæ form, and the radiogram may assume the appearance of the trabecular form of osteoclastoma. Indeed, it may only be when the tumour reaches this stage that the diagnosis can be made with certainty. Recalcification continues steadily for at least two to three years after the original course of irradiation. In some cases the process may last even longer. The rarefied area becomes completely filled. The bone never assumes a normal architecture, the trabeculæ remaining irregular and thick. When healing has taken place, the area appears more dense than normal bone.

Single bone cysts are common, and often give no sign of their presence. They may be discovered

accidentally during a radioscopic examination for some other reason, or because a fracture through the cystic area has occurred. The stages through which the bone cyst passes after irradiation are very similar to those of the osteolytic osteoclastoma already mentioned, only they are not quite so prolonged. Healing of a fracture through a bone cyst sometimes occurs without the use of radiotherapy, but since recalcification and solid bone formation always follow adequate X ray therapy, the end-result is more assured by this treatment.

The last series of films I will show you illustrate cases of localised *osteitis fibrosa cystica*, which have been successfully treated by radiotherapy, as shown by recalcification throughout the cystic areas. Such bones are as strong as normal bone.

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month; his name can be seen later in the half-yearly index

FROM A GENITO-URINARY SURGEON

IV

I AM sitting near a great Scotch pine whose topmost branches tower above me. In front the ground slips away from my feet into nothingness and then rises again on the other side of the valley bearing a wealth of trees the outline of which I can dimly see through a veil of mist. It is one of those autumn days that are sunless yet shot with so much colour that the trunk of that fir tree appears mauve laced with the palest green lichen, and its needles almost a peacock blue. Even the greyness of the mist is touched with some warm light that tells me that the sun is not far distant.

How remote this all seems from the life of the town, and yet from here to London is barely thirty miles. The pine and I are alone with all this beauty; but not for long. Did I not pass some hundred yards away a placard that in six inch letters spelt out the doom of this hillside? Did it not announce with smug complacency that on this very spot would be erected "highly desirable residences fitted with all modern conveniences"? Between that world of villas and this there can be no parley. So, beautiful hillside, your days are ending. Highly desirable residences will cover you, Tudor houses, make-belief antiquities, rustic hypocrisies, privet hedges. The chance of snatching a good profit has proved too strong for your owner; you have been sold to the builders.

* * *

The face of England is changing. This year I revisited Cornwall after four years of absence. "We will call at Bude," I said to my friend, "and find out whether it is as lovely as its name." It turned out to be as lovely as Littlehampton and indistinguishable from it. Man has but little creative imagination, and so it comes about that all the fishing villages of England in time become Littlehamptons, and all those of Southern France grow into Cannes. Men create their own heavens and hells, and their own watering-places. Clearly this one was not to our liking. So shaking the dust of the new Bude from our feet we hastened towards the sea. The sea would surely have defeated them: they could not have vulgarised that. On the cliff we found a cinema, a dance hall, a restaurant beflagged with bunting, a car park, wireless, gramophones, charabancs, and smells. So Cornwall like this Surrey hill is being fitted with modern conveniences, and some day it will be possible to walk round the coast of England on an endless esplanade.

* * *

But why should I complain so bitterly of changes that are inevitable? Change is the one great reality, if I understand my Bergson. There is no such thing as a *thing* that changes but only change itself. Ebb and flow, growth and decay, life and death, a beautiful hillside and a row of villas, and back again to the beautiful hillside, this is the substance of existence. Change is the reality, that which appears to change only a shadow. Can I hold fast a shadow? Not even the shadow of myself.

* * *

Bergson did I say? These ideas are older than Bergson, incredibly old.

"To Tao-ism that which is absolutely still or absolutely perfect is absolutely dead, for without the possibility of growth and change there can be no Tao."

"Movement is only noticeable to something which is relatively still but this is a false stillness because it creates friction with that which is moving. If a man would keep pace with Tao he would find true stillness, for he would be moving with life and friction would not arise."

This unexpected giving to resistance is the secret of ju-jitsu; it is also the secret of the Tao. By yielding to an oncoming force it not only does one no harm but by a slight push may even be made to serve one's ends. We Westerners have realised the skill behind ju-jitsu, but this manner of wrestling with life itself does not attract us. It appears to us as being based on a policy of laissez-faire, an easy-going and ignominious fatalism. Yet to the follower of the Tao this teaching is not a negative but a positive doctrine. I quote again from Alan W. Watts's excellent little book "The Spirit of Zen."

"The skilled master of life never opposes things; he never tries to change things by asserting himself against them; he yields to their full force and either pushes them slightly out of the direct line or else moves them right round in the opposite direction, without ever encountering their direct opposition. That is to say he treats them positively; he changes them by acceptance, by taking them into his confidence, never by flat denial."

I like this picture of life as a wrestling match, in which there are a great many tricks to be learnt from those who are more skilful than ourselves. It is not the usual view. Most of us feel such confidence in our own innate knowledge that we have no need for the help that others may give us. Either we already know all the tricks of the game, or else there are no tricks. Should difficulties arise, it appears to us as sheer bad luck. We have a right to be fortunate. That irritating old sage of the Victorian age, Carlyle has formulated this best in "Sartor Resartus":

"By certain valuations, and averages, of our own striking, we come upon some sort of average terrestrial lot; this we fancy belongs to us by nature, and of indefeasible right. It is simple payment of our wages, of our deserts; requires neither thanks nor complaint; only such *overplus* as there may be do we account Happiness; any *deficit* again is Misery. Now consider that we have the valuation of our own deserts ourselves, and what a fund

of Self-conceit there is in each of us—do you wonder that the balance should so often dip the wrong way, and many a Blockhead cry: See there, what a payment; was ever worthy gentleman so used!—I tell thee Blockhead, it all comes of thy Vanity; of what thou *fanciest* those same deserts of thine to be."

* * *

If we give up the idea that we have any proprietary rights to happiness and start from the standpoint that life is essentially difficult, then perhaps we may in time learn the art of right living from the great teachers of wisdom. And amongst the things we will learn will be Buddha's great principle that much of man's suffering comes from his craving to possess and keep for ever things which are essentially impermanent.

So, my brave countryman that for fifty years has stood upon this hill, you and I must move with life. There must be no vain looking backwards, no desperate attempt to remain frozen still in a moment of Time. That which is still is dead; that which is alive moves on. You and I, the earth on which we stand, the sun behind that bank of mist, are alive. We must follow the path.

THE HARVEIAN CELEBRATIONS

LORD DAWSON ON THE HEALTH SERVICES

AT the Royal College of Physicians of London on Monday last, St. Luke's day, Sir Arthur Hurst delivered the Harveian oration which we publish on p. 949. In the evening some seventy or eighty of the fellows, including one lady, sat down to the Harveian Feast, when the president, Viscount Dawson of Penn, had beside him Sir Cuthbert Wallace, president of the Royal College of Surgeons of England, and Sir Ewen Maclean, president of the British College of Obstetricians and Gynæcologists.

In making the single speech ordained on this occasion, Lord DAWSON spoke of the keen mind, the lively interest, and not least the courage, of the Harveian orator, and also paid tribute to the learned and brilliant performance of his predecessor last year, Sir Walter Langdon-Brown. He also extended a special welcome to Prof. E. L. Kennaway, to whom the Baly medal had been presented that afternoon for his brilliant work in biochemistry. The time, he said, was both fruitful and appreciative of research. But beyond its contribution to the maintenance and furtherance of knowledge, the college was concerned with the applicaton of such knowledge to the prevention and cure of disease, and the circumstances of the moment made it appropriate for him to speak of the services concerned with the health of the nation.

"The promotion of public health," Lord Dawson went on, "is something with which in days past this college has been deeply concerned. Those roots and the tree which has grown from them were planted and tended by men whose names are honoured on our college roll. In the early days health policy was confined to water-supplies, drainage, and suchlike environmental conditions; but the time came for the next great landmark, which was the uprising of bacteriology, and with it came a revealing of the causes and of the means of prevention and cure of infectious diseases—in other words, it became possible to study the marauders on man's health, and their circumvention was reflected dramatically in the comparative mortality tables.

"None the less, this progress in health and the change in health policy which followed it was the work of the medical sciences, and now, in the campaign which was inaugurated by the Prime Minister a short while ago, the emphasis is being laid upon the man himself and the various means whereby he can be reared from infancy to manhood so as to become himself strong in health, with a high capacity for resistance to disease, and able to make his full contribution to a fit race. As a result of that we shall regard in the future not only the quantity of people produced, but their quality, and we shall not be deceived when we are told that the mortality-rates are coming down, and we shall not infer that necessarily all is well.

"To pass on to the health services, these have been developed one by one, being built up by medical men, and in generous measure by fellows of this college. I may refer to one notable example in our distinguished fellow, Sir George Newman. I should like to point out this, that if the present campaign is to achieve its objects, its centre of gravity must be sought inside the medical profession. Without that there can be no substantial achievement. It is agreed—and here I would refer to two communications in the *Times* from fellows of this college, Sir Farquhar Buzzard and Sir Walter Langdon-Brown—that the co-operation of medical practitioners is essential if there is to be a continuing popularity and extension of the health services into wider and wider ranges of population. And why? Because of their knowledge on the one hand, and because, on the other, of their close and intimate contact with the people they serve.

"But how can the practitioners play the part they should when the policy of the last twenty years has more and more detached them from all responsible contact with preventive medicine in the districts in which they live? Putting aside London and a few big cities, the local medical services have outgrown their organisation, and the work of the doctors needs a new orientation. How to bridge the gap at present existing between the health services and the practising doctor, how to coördinate hospital services at present duplicating and sometimes conflicting, how to secure that the best medical talent of a district shall be at the service of the medical officer of health and the local authority, how, in short, to produce a unity of effort by doctors and administrators both in health and education—the solution of these problems would secure the objects of this health campaign in far greater measure than relays of speeches up and down the country. None the less we welcome the public utterances of the Minister of Health and the President of the Board of Education as evidence of their leadership and encouragement. But in general—and I will end with this—this health campaign is an occasion when administrators need to take the advice of doctors, and for that reason among many others, I will give you the health of 'Our College.'"

MANCHESTER VOLUNTARY HOSPITALS.—A survey of the work of these hospitals shows that whereas the total ordinary income has increased since 1932 by more than £50,000, the annual deficit has also increased from £47,599 in 1932 to £81,344 in 1936. Both donations and subscriptions show an increase, the former having grown from £15,628 in 1932 to £26,588 in 1936, and the latter from £68,990 to £75,007. More than two thousand beds have been occupied daily (85 per cent.). The average cost of each in-patient was £8 18*s.* 7*d.*; the average cost of each out-patient was 7*s.* 7*d.*, and his average payment 2*s.* 4*d.*

CORRESPONDENCE

ROYAL MEDICAL BENEVOLENT FUND: AN APPEAL

To the Editor of THE LANCET

SIR,—It is my privilege to appeal once more to your readers on behalf of the Christmas gift fund of the Royal Medical Benevolent Fund. For many years it has been our endeavour to give a Christmas gift of 30*s.* to as many of our beneficiaries as possible. Through the great generosity of your readers during the last two years we have been able to give a gift of 30*s.* to all our annuitants and regular grantees.

I seek your support for this appeal for the coming Christmas and I have every confidence that the response will be as liberal and as whole-hearted as in previous years. All will realise what the value of this Christmas gift is to those who are living a lonely life, in great poverty and in advanced age, some bearing the afflictions of blindness, deafness, or ill health. One letter of thanks received from an annuitant last year ended—

"Thank you all very much indeed, and please let your subscribers know as far as you can all that their gifts mean to us who have small incomes. Tell them how much happiness they give us."

Will those who have kindly helped to raise this special Christmas gift fund in the past help again by sending a donation to the hon. treasurer at the address given below.

I am, Sir, yours faithfully,

THOS. BARLOW,
President.

11, Chandos-street, Cavendish-square, London, W.1, Oct. 13th.

FEVER THERAPY FOR GONORRHŒA

To the Editor of THE LANCET

SIR,—Your leading article of Sept. 18th was a timely calling of attention to a new and very effective remedy for the control of gonorrhœa. Therapeutic hyperthermy seems to have been proved the most reliable and effective method we yet have for this disease. It is proper, however, to call attention to the dangers that may attend the use of any new remedy of great power. Only further experience can determine the danger of idiosyncrasy, that may never before have been manifested by the particular patient. It is known that a certain number of people die of heat-stroke; and the exact pathology of heat-stroke is not known. In America a young man who had gonorrhœal ophthalmia was twice subjected to the fever treatment, his body temperature being each time raised to 103° F. He was markedly better for it. The physiotherapist giving the treatment thought that one more time, raising the temperature to 105°, would complete the cure. It was tried. The temperature was brought to 105°; and, almost instantly, the young man was dead. He had been rather more uncomfortable during the previous treatments than most patients are; but there was nothing else pointing to danger.

The bodily mechanism for heat control is not fully understood. The existence, or location, of a heat-control centre is not established. But the general constancy of the body temperature of all persons in health points strongly toward some heat-control mechanism that is essential to the preservation of life. The certain destruction of bacteria causing a general infection may require the needed increase of temperature, in all parts of the body. Until the dangers of heat therapy are understood, the caution of the professional adviser, and the watchfulness of the skilled technician who applies the heat, will be far more important than the particular make of apparatus that generates it.—I am, Sir, yours faithfully,

Denver, U.S.A., Oct. 3rd. EDWARD JACKSON.

PIRQUET OR MANTOUX?

To the Editor of THE LANCET

SIR,—Your interesting annotation (p. 916) on the relative values of the Pirquet and Mantoux reactions prompts me to record certain observations, the significance of which seems to have escaped notice. Some years ago I published in your columns (*Lancet*, 1917, **2**, 519) a somewhat exhaustive comparative study of the reactions to human and bovine tuberculin by the method of Pirquet. Amongst other findings it was noted that weakly and cachectic patients usually reacted feebly, quite irrespective of differences in the severity of their local lesions. Strong and vigorous patients exhibited wide differences in the degree of their reactions, irrespective of differences in the extent or the severity of their local lesions. In other words the degree of reaction in different subjects showed wide variation with similar dosage of tuberculin but was usually greater in the more vigorous subjects. In no case was it found that the employment of the Pirquet test was associated with extension or exacerbation of existing lesions or the development of new ones.

Subsequently, when the Mantoux reaction was introduced, I made further observations which are unpublished. Briefly they amounted to this, that the Mantoux reaction was more delicate than the Pirquet, and that in two cases a positive Mantoux was speedily followed by the appearance of new and acute tuberculous lesions or exacerbation of existing ones. This may have been just a coincidence but, in my paper already referred to, it was noted that local reactions to inoculations of both human and bovine tuberculin were present in all patients from whose pus tubercle bacilli had been isolated. My early investigation into the value of the Mantoux reaction gave me a strong suspicion that its employment was not devoid of danger and this, coupled with the findings that the Pirquet test was sufficiently sensitive for all practical purposes, led me to prefer the Pirquet test on grounds of safety. Since then I have never employed the Mantoux. In this decision I find confirmation in the facts recorded in your note and I would warn my colleagues of a possible danger in applying this popular and now widely practised test.—I am, Sir, yours faithfully,

Alton, Oct. 18th. HENRY GAUVAIN.

THE ARCHES OF THE FEET

To the Editor of THE LANCET

SIR,—Mr. Norman Lake, in a post-graduate lecture reported in your issue of Oct. 9th (p. 872), gives an excellent summary of the theories on which is based his belief that the foot is in process of developing from the flexible, prehensile foot of the anthropoids to a completely rigid structure. It may be that this is the case, but for clinical purposes we have to treat the foot as it is to-day—that is as a moderately supple structure.

The feet of nearly all young people and very many older people are capable of a considerable amount of movement which takes place largely at the sub-astragaloid and astragalo-scaphoid joints. These

movements enable the height of the arch to be changed. Mr. Lake says that no one but a ballet-dancer can raise and lower the arch at will, but I can assure him that the necessary movements can be learned by any "normal" person and most "flat-footed" people in a couple of minutes.

The arch of the foot is not like a masonry arch which collapses by separation of the lower edges of the stones when the supporting columns are moved apart. Living joints are not designed to permit such movement. The height of the arch of the foot depends on the posture of the subastragaloid joint. Movement here is a complicated rotary one, and the arch is necessarily raised when the foot is adducted and inverted. Rotary movement is therefore essential to alter the height of the arch.

Mr. Lake's contention that the ligaments play an important part in maintaining the integrity of the arch of the foot is tenable only if it is accepted that the arch is fixed in height. If the arch really can be raised and lowered at will—and I hope to convince him of this—the ligaments cannot behave in such a way, because they have not sufficient elasticity.

I am, Sir, yours faithfully,

Harley-street, W., Oct. 18th. PHILIP WILES.

CHRYSOTHERAPY

To the Editor of THE LANCET

SIR,—May I congratulate Prof. Hartfall, Dr. Garland, and Dr. Goldie on their valuable article on chrysotherapy in 900 cases. From this everyone can gain a complete idea of the benefits of the treatment, as of the risks inherent in its use. The value of gold injections is apparently great in rheumatoid arthritis, slight in osteo-arthritis. In which of these two groups is the ordinary infective arthritis? This disease is to be distinguished from rheumatoid arthritis; it is probably a form of osteo-arthritis with a high infective factor.

I take exception to the statement that gold given on these lines is the best single method of treating *rheumatoid arthritis*. At the Charterhouse Rheumatism Clinic six times these numbers have been treated by inoculation. As can be seen from the published reports, the percentage results in rheumatoid arthritis and active infective arthritis are approximately the same as those given in this paper. In true rheumatoid arthritis before deformity and in bilateral sacroilitis, which is the first stage of spondylitis adolescens, the figures are clearly in favour of vaccines, as the recovery-rate of each is 100 per cent. The treatment has two further advantages over gold. It is successful in osteo-arthritis, and it can be administered without risk by any doctor who takes the trouble to learn the method. In gold treatment as described by Prof. Hartfall and his colleagues one must further note the 40 per cent. of toxic reactions, which do not occur at all with vaccines properly given. No deaths due to vaccine have been recorded at the clinic in 5500 cases.

It must not be thought that gold treatment is entirely ruled out at the clinic. It is, in fact, under trial at the present time, though in very small doses, and it is being applied to cases of severe arthritis which, although somewhat better, have been under treatment for a long period and have come to a standstill. Following the method of Secher,[1] Dr. Farncombe in Southsea and the staff of the clinic in London have treated some sixty cases. The preparation used has been chiefly Solganal B oleosum, but others are under trial. The initial dose has been 10 mg. by Dr. Farncombe, 4 mg. at the clinic. Here, if reaction occurred, 0·4 mg. was the next dose, and in a few cases, following further reaction, 0·04 mg. As the result of some six to eight injections of gold at approximately fortnightly intervals, 50 per cent. of the cases showed a striking improvement and, on reverting to vaccines, resumed a satisfactory rate of progress. Reactions when they occurred were purely focal and exactly comparable to those produced by a slight overdose of vaccine. With this method of giving gold, in only one case was there toxic reaction of any kind. This patient was apparently gold-sensitive, and after the first dose developed an itchy erythema which passed off in about three days. The treatment in this case was not pursued.

The manufacturers of gold preparations state that not more than ten days should be allowed to elapse between the injections or severe reaction may follow. This suggests not a chemotherapeutic effect but some kind of immunity response. I believe that, where immunity responses are in question, the aim in view should be the administration of the smallest dose which produces an effect rather than the largest which can be tolerated. If this is correct, then there is no need for the massive doses of gold usually given. Experience will decide the issue.

I am, Sir, yours faithfully,

Harley-street, W., Oct. 15th. H. WARREN CROWE.

[1] Secher, K.: Traitement des maladies rheumatismales par la sanocrysine, Copenhagen, 1933.

BETTER FO'C'SLES

To the Editor of THE LANCET

SIR,—On behalf of the Association of Port Sanitary (now Health) Authorities of the British Isles, I should like to express appreciation of the generous recognition given in a recent leading article (p. 809) to the part played by this association in preparing the way for the great advances in marine hygiene that should be obtained by proper administration of the new Instructions. May I point out, however, that the association's first set of "Recommendations re Hygiene of Crew Spaces" was published not in 1931 but so long ago as 1922. In this first series there were 22 recommendations and in the second revised series published in 1935 there were 24. With few exceptions all the 1935 recommendations of the association are reflected in the new Instructions.

I am, Sir, yours faithfully,

J. GREENWOOD WILSON,
Hon. Secretary, Association of Port Health Authorities of the British Isles.

City Hall, Cardiff, Oct. 16th.

POLITICS IN THE HOSPITAL

To the Editor of THE LANCET

SIR,—We read with interest and appreciation your leading article on Oct. 9th. As the central body on socialist questions among medical students, we thought it opportune to make clear our ideas on certain points which have been raised.

We quite agree with you when you state that "political differences of opinion are compatible with friendship and everyday collaboration, and medical students ought to be well enough educated to carry on this valuable tradition." Too much has been made of this bogy of political strife in the medical schools; like the Jabberwock it just does not exist. For instance our journal, *Hospital*, has been sold widely amongst medical students all over the country, and has never been known to destroy one friendship, still less provoke a free-fight, of which the

editor of the *St. Bartholomew's Hospital Journal* seemed to be afraid.

It is becoming more and more obvious nowadays how important it is for doctors to have a broad political outlook. The place of social factors such as undernourishment and bad housing conditions in the ætiology of disease is recognised; but these are political as much as medical problems, and unless political methods are used in their solution the medical ones will fail. Doctors are met at every turn with other problems, such as the necessity of a State medical service, which demand a political solution. The hospital socialist societies exist for the purpose of discussing these and other questions. They feel that a Socialist State would make the work of doctors more fruitful, because of the improved environmental conditions the people would be able to produce for themselves.

There is no "centralised party propaganda" in the hospitals. Each socialist society is autonomous and affiliated to the University of London Socialist Society; a uniform arrangement for all the colleges in London. The Inter-Hospital Socialist Council is an advisory council to the University Labour Federation. They have to consider the problems of medical students in the light of socialist theory.

Nobody to our knowledge has ever suggested the formation of branches of political parties in the hospitals; this would clearly be resented as an intrusion, the opposite of a spontaneous movement, and we could not be party to such an act.

We are, Sir, yours faithfully,

EXECUTIVE COMMITTEE OF THE INTER-HOSPITAL SOCIALIST COUNCIL.

37, Great James-street, W.C.1, Oct. 18th.

MY POST-BAG

To the Editor of THE LANCET

SIR,—As advertising manager to a firm specialising in biochemical products, I pause in my nefarious activities and make bold to raise my voice in reply to Postman's Friend. The specialties of a reputable firm represent the fruits of careful research, undertaken with the object of providing the physician with preparations that will make his efforts to combat disease more effective; in a word, our aim is to facilitate efficient therapy. Please do not imagine, Sir, that I am suggesting that the motives actuating this work are purely altruistic. In common with other trades and professions, there is the sordid expectation that fair payment will be made for our work.

Having satisfied ourselves that the product will accomplish the purpose for which it is intended, it is obviously necessary to draw attention to it. One of the easiest ways is to send a representative, but the majority of doctors are often too busy to give the time for an interview. To write out concisely what the product will do, present the information in a readable and attractive form and send it through the post is, from the doctor's point of view, the most convenient and time-saving way of drawing his attention to a product.

In his jovial and friendly circular, your correspondent says "I am never attracted to products advertised by post," may I ask (*a*) if he is attracted to any products at all, and (*b*) what form of advertising, if any, can he bear without resentment?

I am, Sir, yours faithfully,

M.P.S.

Oct. 16th.

PHYSICAL UNFITNESS

To the Editor of THE LANCET

SIR,—In his address on Physical Unfitness published in your last issue Sir Joseph Barcroft makes use of the term a "C3 population" and of that other common cliché "fitness" without defining what he means by them. With your premission I should like to put certain questions to him, questions to which the clinician is probably prepared to give his own answers but on which the opinion of a distinguished physiologist would be helpful. Here they are: Has the Army standard of fitness any real relation to the requirements of civil life? In other words, may a man not be a C3 recruit and yet an A1 civilian? Do such disabilities as flat-foot and deformed toes, for instance, really matter in ordinary life? (I once knew a promising lad refused for the Navy because he had webbed toes, surely an advantage rather than otherwise in such a profession.) What is really meant by that abominable word "fitness"? Fit for what kind of life and occupation? If the conception of fitness includes the attainment by the individual of the greatest height and muscular development possible to him is this an advantage from the point of view of health? Does good physique make for increased resistance to disease? Is it any benefit to one to carry about an excess of muscle not used in one's job? May not such an excess be just as injurious as an excess of fat and do harm by imposing extra work on the circulatory apparatus? These are some of the preliminary questions which need to be answered if in our present zeal for physical education we are not to find ourselves barking up the wrong tree.

Sir Joseph arrives at the conclusion that the teens are the time when weediness is most apt to develop. Every clinical knows this, and it is what a mother means when she says a lad has "outgrown his strength." It is the result of rapid growth at this age and the demands which it makes on the body as a whole. When growth is completed the boy often "fills out," but meanwhile he needs, it is true, abundant food but he also needs plenty of rest and sleep and his exercise must be carefully rationed. Especially is this the case if he is carrying on an occupation which tires him either physically or mentally. I am, Sir, yours faithfully,

ROBT. HUTCHISON.

Devonshire-place, W., Oct. 19th.

HOSPITAL WARDS AS LATRINES

To the Editor of THE LANCET

SIR,—Your correspondent, Mr. W. B. Cosens, makes suggestions which have serious disadvantages, although his lonely voice entitles him to our respect. Every hospital must have method; and patients, after admission, soon get accustomed to using bed-pans and urinals at specified times, although exceptions do occur. After breakfast almost every patient in a well-run ward has a bed-pan. If the "simple procedure of wheeling in a bed to this room set apart" is followed, many of those waiting will be in severe discomfort, and some will have to be content with an incomplete evacuation. Wide open windows, after the bed-pan round, soon eliminates the smell, which is the main drawback to present methods.

The nurse who gives bed-pans does not do dressings as a routine. As an exception, I have known the need for evacuation to occur while the patient's dressing is being done; it is surely better to cover the wound temporarily and attend first to the other need.

Other difficulties arise to mind: the considerable increase in labour, those patients who are labelled (in teaching hospitals) "not to be examined," the incontinent. Ward hygiene will presumably be debated by the new committee of investigation into the conditions of nursing life, or will it confine itself to the "refinedly visible"?

I am, Sir, yours faithfully,

Preston, Oct. 16th. G. E. COOKE.

To the Editor of THE LANCET

SIR,—It is much to be hoped that the valuable letter of Mr. W. B. Cosens on ward hygiene will receive the support it deserves. It is true, as he says, that hospital governors, committee members, physicians, and surgeons simply have not thought about it. Well, they should: that is what they are there for. Especially valuable is his suggestion for a sanitary squad; most certainly surgical nurses should not do this work. The phrase "as clean as a hospital" should apply to its unseen and disregarded parts. When this is true there will no doubt be a proportionate improvement in the recovery-rate of patients and in the standard of health of the staff.

I am, Sir, yours faithfully,

Oct. 16th. M.B. LOND.

PANEL AND CONTRACT PRACTICE

A South African View of Health Insurance

SOUTH AFRICA is one of the British Dominions in which the introduction of compulsory health insurance has become a live political issue. The Government has prepared a provisional scheme, which was summarised in this column a few months ago (*Lancet*, 1937, **1**, 1301), and has given it a wide circulation in order to elicit the views of the interests concerned before a definite scheme is formulated. To the medical profession the question is obviously of vital interest, and it has been discussed in meetings of practitioners in various parts of the Union. A considerable body of medical opinion is in favour of health insurance, but at a recent meeting of the Medical Graduates' Association of the University of the Witwatersrand Dr. F. Daubenton gave an address[1] in which he expressed an adverse view. He gave an interesting account, beginning about 2000 years B.C., of various methods that have been adopted for providing medical care and the difficulties that they have met. This historical survey includes a long extract from the "History of the British Medical Association" describing the unfortunate misunderstandings and antagonisms that attended the inception of the British health insurance scheme. It might be thought that this raking up of "old unhappy far off things" was unnecessary in discussing health insurance in South Africa, where the Government, so far from showing any sign of hasty legislation, has been at considerable pains to ascertain the views of the medical profession and to produce a well-considered scheme. Dr. Daubenton, however, has not neglected to obtain evidence of the present-day working of health insurance. He quotes from a recent Chilian report to the International Labour Office on the compulsory insurance scheme that came into operation in Chili in 1932. The report states that the Chilian insurance practitioners feel "a certain disillusionment" because, though the mortality of infants, who come within the operation of the scheme, has gone down considerably, no appreciable reduction in mortality or morbidity can be observed in the general population; and the report concludes that curative medicine must be supplemented by preventive measures.

This conclusion as a general proposition will secure universal acceptance in this country, where the most enthusiastic advocates of health insurance have never suggested that the provision of medical treatment is all that is necessary to safeguard and promote the public health. If a different view were ever taken by Chilian insurance practitioners, it is hardly surprising that they are now feeling a certain disillusionment. One of the most remarkable facts about health insurance in this country is that it has been accompanied by a great advance, on a wide front, of our system of preventive medicine. For example, it was not until the National Insurance Act of 1911 was passed that Government grants were made available for the anti-tuberculosis campaign, for the gratuitous treatment of venereal diseases by the local health authorities, and for the provision of maternity and child welfare services. It is not too much to say that the enormous development during the last twenty-five years of these important fields of preventive work has transformed British public health administration.

All this could have been discovered by Dr. Daubenton if instead of seeking guidance from South America he had turned to Great Britain, where health insurance has been in operation for twenty-five years. He would have found that here the British Medical Association has, both in evidence before the Royal Commission on National Health Insurance and on other occasions, expressed approval of the insurance system, and is indeed pressing for its extension by the inclusion of the dependants of insured persons. The view of the Association is, in short, in agreement with that expressed by the International Medical Association at the Paris meeting of 1928 in the following resolution:

> The Association fully approves the principle of sickness insurance for the poorer classes of the community. This principle represents a great social advance and a powerful factor in the prosperity and welfare of nations.

[1] *S. Afr. med. J.* Sept. 11th, 1937, p. 599.

Wanted a Definition

Dr. Leslie Trotter (Ledbury, Herefordshire) writes: "Your reference to the vexed subject of certification (p. 822) raises the question of the definition of the word *examined* on Form Med. 40 (revised). Does *examined* imply a complete physical examination of every insured person every time he or she applies for a certificate? If not, what does it mean? In practice it looks very much as if at least 99·9 per cent. of certificates issued under the National Health Insurance were untrue, just as untrue in fact as those for which a penalty was imposed. It would be interesting to know if an official ruling has ever been made as to what *examined* means."

Dr. Trotter would have us define the indefinable. He asks: "Does *examined* imply a complete physical examination of every insured person every time he or she applies for a certificate?" It does not. Let us examine the wording of the certificate of incapacity. It runs "I hereby certify that I have examined you on the undermentioned date, and that in my opinion you were (or you have remained) incapable of work by reason of" some specific disease or bodily or mental disablement. The certificate contains a statement of fact, an expression of opinion, and a further statement of the condition giving rise to that opinion. The

opinion as to the insured person's incapacity for work must be based upon his condition and that condition becomes known to the practitioner as the result of his personal observation of the patient. There is nothing in the form of the certificate to imply that in every case a complete physical examination must be made as an antecedent to its issue. The practitioner in treating an illness makes adequate examination of his patient from time to time in order to satisfy himself as to the progress of the disease. An examination may consist of a question to the patient, or an observation of his appearance, but the statement of fact in the certificate ("I have examined you") means something more than that the practitioner has satisfied himself that the patient is incapable of work. It means what it says—namely, that he has seen him—and insurance committees are insistent that certificates should not be issued if the practitioner has not himself seen the patient on the date stated. Take a classic instance in London. A practitioner issued a series of certificates in respect of an insured person without having seen him. There was no question about the insured person's incapacity for work, but it so happened that unknown to the practitioner the insured person had spent the period covered by these certificates at Wormwood Scrubs. Had not the approved society become aware that the insured person had been in prison they might have paid him sickness benefit for a period of several weeks when he was not entitled to it. The point might be put thus. The practitioner must see the patient, and the degree of examination must be sufficient to enable him to form an opinion as to the insured person's incapacity for work or otherwise and as to the cause for that incapacity.

PUBLIC HEALTH

Let the City Sponsor its Own Hospitals

Mr. C. E. A. Bedwell, house governor of King's College Hospital, made an interesting suggestion at the opening meeting of the London Society last week. He had been running over the care of the sick in London down the ages and discovering that the first important intervention of a local authority was in the person of the Corporation of London three centuries ago, and he was trying to anticipate the coming changes in hospital organisation. Recalling a recent remark of Mr. Eason's that it is in the nature of a general hospital that its chief activity shall be the medical and surgical treatment of the sick poor, rather than the milder and less personal service of preventive medicine, he found the position of the London County Council to be clear enough. It has a definite aim in trying to work out a way in which all the hospitals can be brought up to date. If, said Mr. Eason, the public does not support the voluntary hospitals in the full measure necessary for their maintenance, they will inevitably pass under the control of public authority, and the Act of 1929 removed the State as such from the arena of direct intervention. But, Mr. Bedwell asks, is it possible to conceive a County of London hospital system absorbing within its ambit, for example, St. Bartholomew's and St. Thomas's Hospitals, Moorfields Eye Hospital, and Great Ormond-street Children's Hospital? These are not London institutions in the sense in which the Royal Infirmaries of Manchester or Newcastle-on-Tyne belong to those two great cities. He would like the City Corporation to end as it began and to intervene now by making the same kind of impartial review of London hospitals as was made by the House of Lords committee half a century ago. The City, as he says, has an exceptional interest in the voluntary hospitals and the confidence of their chief supporters. The Mansion House is the greatest centre of voluntary beneficence in the world; the City companies are unfailing in their support, the members of the Stock Exchange respond time after time to appeals, and City firms follow their example. The City Corporation could call to its councils, either as witnesses or as colleagues, representatives of the medical profession and of the patients as well as of the bodies now immediately concerned with the work of the voluntary hospitals. They might find it desirable to consider methods of combining State assistance with voluntary support as at present in Scotland and likely to happen in Australia. The borough councils would of course not be left out of account; King Edward's Hospital Fund and the London Voluntary Hospital Committee would present their view and experience, but the Corporation of London might render its contribution to the hospitals in this signal fashion.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 9TH, 1937

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 0; scarlet fever, 2379; diphtheria, 1451; enteric fever, 45; pneumonia (primary or influenzal), 679; puerperal pyrexia, 173*; cerebro-spinal fever, 11; acute poliomyelitis, 39; acute polio-encephalitis, 2; encephalitis lethargica, 3; dysentery, 40; ophthalmia neonatorum, 105. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on Oct. 15th was 3147, which included: Scarlet fever, 848; diphtheria, 1068 (diphtheria carriers, 24); measles, 88; whooping-cough, 302; puerperal fever, 9 mothers (plus 5 babies); encephalitis lethargica, 283; poliomyelitis, 14. At St. Margaret's Hospital there were 26 babies (plus 10 mothers) with ophthalmia neonatorum.

Deaths.—In 124 great towns, including London, there was no death from small-pox or enteric fever 7 (1) from measles, 3 (1) from scarlet fever, 4 (1) from whooping-cough, 25 (3) from diphtheria, 68 (21) from diarrhœa and enteritis under two years, and 32 (10) from influenza. The figures in parentheses are those for London itself.

Diphtheria was fatal in 18 great towns; Manchester reported 4 and Liverpool 3 deaths. Liverpool had 10 deaths from diarrhœa, Hull and Leeds each 3.

The number of stillbirths notified during the week was 277 (corresponding to a rate of 41 per 1000 total births), including 42 in London.

* The Public Health Act, 1936, provides that on and after Oct. 1st, 1937, in all areas outside London administrative county the obligation to notify cases of puerperal pyrexia shall include the obligation to notify conditions previously notifiable as puerperal fever. The figure here given is the sum of 170 notifications of puerperal pyrexia in England and Wales as a whole, and 3 notifications of puerperal fever in the county of London.

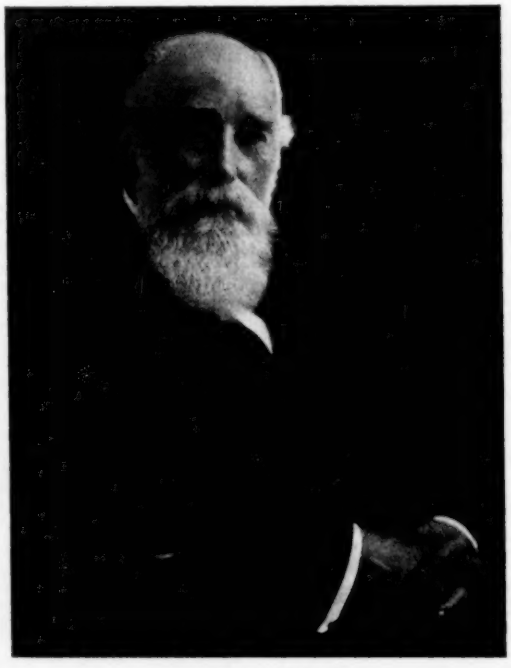
CAMPAIGN FOR PHYSICAL FITNESS IN SCOTLAND.—Our Edinburgh correspondent writes: A conference is to be held on Friday and Saturday of this week at Peebles to discuss the arrangements needed to put the Government's physical fitness programme into operation. Ninety delegates are to be sent from Scottish counties and various government departments and national organisations will also be represented. Some scepticism has been expressed about the value of the health campaign, but there can be little doubt that for a certain type of person the facilities to be provided will be of great value both to body and mind. Possibly, too, the schemes adopted may help in the very necessary task of re-educating the injured or disabled workman.

OBITUARY

SIR JOHN MOORE, M.D., Sc.D., LL.D.

AFTER a few weeks' illness Sir John Moore died at his house in Dublin on the morning of Oct. 12th, being within a fortnight of his 92nd birthday. He was descended from a Lancashire family which settled in County Longford near the end of the seventeenth century, and his father and grandfather were both medical men. The grandfather, Christopher Moore, was governor of the Apothecaries Hall and lived to the age of 97; the father, William Daniel, noted for his remarkable knowledge of languages, translated several foreign classics for the Sydenham Society.

John William Moore was born in Dublin in 1845 and received his school education in the High School of that city. From there he entered Trinity College and in 1865 he was elected a scholar of the course in classics. For many years before his death he was the senior ex-scholar and he received a great reception when he attended the classical scholars' dinner in hall on the 70th anniversary of his election. He studied clinical medicine at the Meath Hospital and at Sir Patrick Dun's Hospital, and took his degrees in medicine and surgery in 1869, proceeding to the M.D. in 1871. In 1870 he was admitted a licentiate of the King and Queen's College of Physicians of Ireland and three years later became a fellow. In 1871 he persuaded the University of Dublin to establish a diploma in State medicine—the first to be established anywhere—and he was himself the first to gain it. In 1875 he was appointed to fill the vacancy on the staff of the Meath Hospital, created by the resignation of William Stokes who had held the office from 1826, and he did not resign this post until two years ago, so that the two men in immediate succession covered a period of 109 years.



SIR JOHN MOORE

[Photograph by Elliott and Fry

While still a young man Moore took over the editorship of the *Dublin Journal of the Medical Sciences* from the late Dr. James Little and he continued as editor until 1921. He also succeeded Little as professor of medicine in the school of the Royal College of Surgeons and held the post for over 40 years. He was for some time one of the physicians to Cork-street Fever Hospital and was consulting physician to many hospitals and other institutions. From 1898 to 1900 he was president of the Royal College of Physicians of Ireland, and while holding that post was knighted. From 1903 to 1933 he represented the Royal College of Physicians on the General Medical Council, and for several years he was chairman of its public health committee and also of the Irish branch council. In 1919 he was nominated a member of the Irish Public Health Council and took part in the drafting of its report, a document on which all subsequent reforms in the public health administration of Ireland have been based. In 1921, when an attempt was made to put the Act for the Better Government of Ireland of 1920 into force, Sir John was nominated a member of the Council of Ireland; but the body never came into being. He took an active part in the formation of the Royal Academy of Medicine in Ireland in 1882, and in late years was its president.

Apart from the ordinary work of a general physician Moore had two outstanding interests—meteorology and public health. He wrote one of the best text-books on the former subject and he had kept a record of the weather at his home in Fitzwilliam-square for over sixty years past, allowing no absence from home or social engagement to interfere with the regular record of observations, if not by himself by a deputy. In all movements towards the improvement of the public health he was a pioneer. As has been said above, it was due to his efforts that the University of Dublin was moved to establish a diploma in State medicine (subsequently termed diploma in public health) thereby leading the way to the other medical educational bodies in the United Kingdom. Through the whole of his professional life he gave active coöperation to campaigns against disease, and particularly against tuberculosis.

As a physician Moore was thoroughly grounded in the solid foundations laid by his great masters, Graves and Stokes. In the Meath Hospital he kept alive the teaching of Stokes on the importance of the heart muscle in diseases of the heart during the long years when it had been forgotten in London and Edinburgh, until Mackenzie proclaimed it in all sincerity as if it were a new discovery. But Moore was more than a mere disciple of great masters. He was himself a most careful clinical observer, a fact of which the early volumes of the *Transactions* of the Royal Academy of Medicine give ample evidence. His work at Cork-street Fever Hospital and his wide reading gave him material for a book on the "Eruptive and Continued Fevers" which had a considerable vogue in the 'nineties but now naturally is out of date.

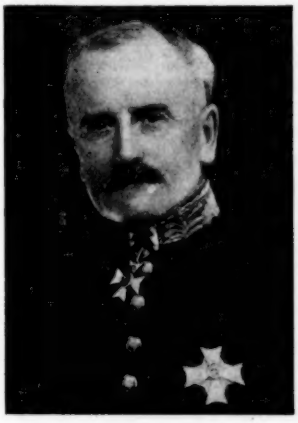
For two generations at least Sir John Moore has been an outstanding figure, not only in the medical world in Ireland but in the civic and social life of Dublin. There was scarcely any limit to the diversity of his activities, and his interest in all of them was sincere. He never when in Dublin missed a meeting of the College of Physicians, and never a meeting of the committee of the Royal Medical Benevolent Fund, of which he was an honorary officer. All who met him were impressed by his dignity and courtliness, not only of appearance and manner but of expression. He was scholarly in his outlook and spoke and wrote as a scholar. His writings were as clear to comprehend as his beautiful handwriting was to read. Holding his views strongly he was tolerant and courteous in his expression of them, and no opposition could ruffle his temper. He retained his faculties until quite recently when his friends noticed a gradual failing of memory. A fortnight before his death there were symptoms of cerebral hæmorrhage and his life gradually sank to its close.

Sir John Moore's one surviving son, Surg. Captain Maurice Moore, is an officer in the Royal Navy. He also leaves a widow and three daughters.

SIR ASHLEY MACKINTOSH, M.D., LL.D. Aberd., F.R.C.P. Edin.

Sir Ashley Mackintosh died on Oct. 14th in Aberdeen in his seventieth year. He had been in his usual health until a week before when he returned indisposed from a visit to Edinburgh and developed pneumonia. His life had been devoted to the well-being of Aberdeen—its university, its Royal Infirmary, its students—and to that end he had bent all the energy and strength of a never too robust physical frame.

Ashley Watson Mackintosh was born and bred in a country manse, "and I have yet to hear," he said, "of a better training place." After early years at a dame's school and too strenuous a time with a country dominie he entered King's College, Aberdeen, where his father had graduated fifty years earlier and his elder brother had passed through both arts and medicine. There he graduated in arts in 1888 with double first-class honours. He then went to King's College, Cambridge, to study mathematics and gained the Fullerton scholarship, but soon decided that a don's life was not for him and returning to Aberdeen he took the John Murray gold medal, became president of the students' council, and qualified in medicine in 1893. He pursued his studies at Leipzig and Vienna with the help of the George Thompson travelling fellowship, studied nervous diseases at the National Hospital in London, and took his M.D. at Aberdeen and the Struthers gold medal. Eight years of general practice followed, but he became more and more of a consultant, and finally so after his appointment in 1909 as full physician to the Royal Infirmary and lecturer in clinical medicine. Three years later his application for the Regius chair of medicine was supported by 370 of his former pupils in all parts of the world. This chair he occupied for 18 years, retiring shortly after his appointment as honorary physician to H.M. Household in Scotland. The following year he was created K.C.V.O. and shortly after the university made him LL.D. Two years later at a representative gathering in Aberdeen he was presented with his portrait and a sum of £1000 as a tribute to his eminent services to the profession. The portrait he gave back to the university and the money gift for the assistance of students in any faculty in time of sickness. From 1924–31 he represented Aberdeen University on the General Medical Council. About this time he brought to fruition, with his colleague Mathew Hay, the building of the new Royal Infirmary and the concentration of all the voluntary medical services on the new Forrester-hill site, but he did not live long enough to see this magnificent vision completely realised with the opening of the maternity hospital and the new medical school which are still for the near future.



SIR ASHLEY MACKINTOSH
[*Photograph by Vandyk*

It was as a teacher of clinical medicine that Mackintosh will be best remembered. The testimony of his pupils is unanimous. "He was unsurpassed," writes one of them, "and at the bedside he was seen at his best. Who of his own students will forget his enthusiasm, his insistence on the complete and detailed physical examination, his lucid and logical analysis of the symptoms, and his obvious pleasure in the demonstration of the intricacies and complexities of the central nervous system? And with it all one carried away the profound impression of the intense humanity of the man, for to him the patient was no mere diseased piece of mechanism but a sick and suffering human being." And another writes: "His teaching was lucid and clear and dynamic, and he could drive home a point with sledge-hammer-like effect. The inaccurate and the uncertain he had little use for. Well do I remember when he asked a final-year student: 'Mr. X, has this man an aortic diastolic bruit?' The student listened to the chest carefully and then said: 'I think so, Sir.' Mackintosh's usually so serious eyes flashed. 'Think so,' he said, '*think* so? With an aortic diastolic bruit there is no such thing as thinking so. It is yes or no.' This attitude characterised everything he went into; he hated doubt and he would worry greatly when he himself was in diagnostic doubt. He could not rest until he had cleared up a thing—not that he could really rest at any time, for he was ever at tension, working, working, working, and burning the midnight oil that in turn was burning the life out of him."

In his contacts with his students their interests were his main concern, as in his coöperation, help, and guidance in the provision of a new students' union. The students on their side reciprocated heartily, and to them he was always affectionately known, and spoken of, never as "The Professor" but simply as "Ashley." No student ever went to him in trouble who did not come away a heartened man. "In spite of all his great attainments he was humility itself. He had no high opinion of all the learning stored in his fine head, nor of all the greatness and generosity in that great heart of his. The one thing that perturbed him and made his eyes flash was anything he regarded as injustice."

His intimate friends, and he had a genius for friendship, will like to remember "Ashley" as he was on holiday in his haunts of Edzell or Deeside, free from the cares and worries of his profession, and as full of fun and practical jokes as a boy on holiday. "Who has not stood at the first tee at Edzell, thinking as his host drove that the game was already in his pocket, only to find himself half-way round the course nonplussed by the devastating accuracy of his short shots to the green? Then the evening dinner with 'Ashley' at his best and wittiest, eager to display to his guests the solution of the newest mathematical teasers in the weekly journals, and mildly derisive of his non-mathematical brethren who had to content themselves with a cross-word puzzle. A lovable personality, a fine teacher, and a great friend, he will be sorely missed."

Sir Ashley Mackintosh was unmarried and he is survived by two sisters, with one of whom he lived.

EDWARD WALFORD, M.D. Durh., D.P.H.

Dr. Walford, sometime medical officer of health for Cardiff, died on Oct. 2nd at Walmer, Kent, in his 91st year. Born at Ramsgate he went to school at Lyons, where he acquired his useful knowledge of French, studied at St. George's Hospital and after qualifying in 1869 he returned to his native town as resident surgeon at the infirmary and later succeeded his father in practice there. He also had a part share in a private asylum. The Kentish coastal towns were beginning to develop as seaside resorts and to attract visitors from many quarters, an influx which brought with it sanitary problems. As medical officer to the borough and port Walford became interested in their investigation, and the experience led him to seek a career in the public health service. In 1888 he was appointed medical officer for Cardiff in succession to H. J. Paine, one of the earliest full-time sanitarians. At Cardiff he had to deal with a town of rapid and continuous growth with deficient housing, bad drainage, and an imperfect water-supply, and with a large and increasing seaport having relations with many foreign countries. A threat of cholera in 1892 required precautionary measures, such as the establishment of an examination station with beds on a small island in the Bristol Channel. During the war years, though over military age, he had many responsible duties added to his work. When he retired in 1921 he had accomplished much and in the many changes brought by the advance of public health he had succeeded in carrying with him the confidence of the medical profession and public to a remarkable degree. He had an old-world courtesy which smoothed many difficulties, and at the farewell banquet many were the expressions of regret and personal affection in parting from all classes of the community.

Mr. FREDERICK MILNES BLUMER, who died at Stafford last Saturday at the age of 78, was consulting surgeon to the Staffordshire General Infirmary and a leading citizen of his town. The son of Luke Blumer, M.D., he graduated in arts at Durham and in medicine at Edinburgh. After holding house appointments at Carlisle and Stafford, he was in 1886 appointed medical officer of health for the latter borough and began to practise there. He joined the infirmary staff in the following year and from 1898 to 1924 was senior surgeon. In 1918 he became a justice of the peace, and in 1919–20 he was mayor of Stafford. Mrs. Blumer, who survives him, is the daughter of the Rev. Robert Kitching, and there were four sons of the marriage, one of whom, Dr. Eric Blumer, holds his father's old position at the Staffordshire General Infirmary. A brother is Dr. G. Alder Blumer, editor emeritus of the *American Journal of Psychiatry*.

MEDICAL NEWS

University of Oxford

The degree of M.A. has been conferred on Prof. J. H. Burn and Prof. Simon Flexner.

A second May fellowship in medicine has been established under the will of Miss Alice Mary May.

University of Cambridge

On Oct. 15th the following degrees were conferred:—

M.B., B.Chir.—H. A. Burt, G. B. Barbour, H. G. Goldwater, E. W. Hart, J. M. Ranking, M. W. H. Evans, P. E. T. Hancock, W. R. S. Hutchinson, L. O. Mountford, H. B. Pope, J. F. Stokes, J. C. G. Whitelaw, T. E. Johnson, J. E. V. Jones, C. V. Braimbridge, A. G. Bellamy, and W. F. Rhodes (by proxy); S. G. Mayer, M. C. H. Kingdon, W. A. Nicholson, A. F. Stallard, J. H. G. Thompson, C. St. A. Vivian, A. B. Lintott, B. D. Molesworth, and S. G. Brook.

M.B.—G. H. H. Waylen, C. P. Campion, A. B. Connell, A. H. Dunkerley, T. E. Lamech, O. S. Tubbs, F. H. A. Walker, A. B. MacEwan, P. G. Scott, C. G. H. Morse, C. E. Donaldson, and C. McC. Jones (by proxy); W. E. Wells, N. R. Cunningham, G. N. Grose, J. O. Harrison, C. F. Mayne, J. G. Webb, and H. M. Elliott.

At recent examinations the following candidates were successful:—

D.M.R.E.

Part II.—A. B. Brereton, T. H. T. Gautby, David Gold, J. L. King, M. A. M. Marei, Aly Sirry, and C. P. Theron.

Prof. J. H. Gaddum and Dr. C. M. Scott have been appointed examiners for the oral examination in pharmacology this month.

University of Liverpool

At recent examinations the following candidates were successful:—

D.P.H.

J. A. Bentham, G. R. Griffith, and S. M. Laird.

University of Wales

At recent examinations at the Welsh National School of Medicine the following candidates were successful:—

D.P.H.

Part II.—W. J. M. Evans, G. E. Phillips, D. T. Richards, B. A. Thomas, and D. A. O. Wilson.

University of Dublin

At recent examinations at the School of Physic, Trinity College, the following candidates were successful:—

FINAL MEDICAL EXAMINATION FOR M.B., B.CHIR.

Part I.—Therapeutics and Pathology, &c.—P. M. Goedvolk, H. H. Balch, G. O. Atkinson (first-class honours); D. W. M'Carthy, P. H. Rubenstein, Samuel Tennenbaum, G. F. N. Anderson (second-class honours); W. E. Bamford, J. P. Condon, E. N. O. Sodeinde, R. F. G. Lyons, Matthew Shreider, D. St. B. F. Nunan, J. H. Tyrrell, Moira M. Mallagh, E. R. Coetzee, H. J. F. Draffin, E. F. Keating, G. S. Sheill, T. N. Arthur, J. R. A. Martin, Miriam A. Becket, Annie Dowds, and S. F. H. Haughton.

DIPLOMA IN GYNÆCOLOGY AND OBSTETRICS.

J. N. Sengupta and Sailadhan Bandyopadhyay.

Medical Society of Individual Psychology

This society held its first meeting of the session at 11, Chandos-street, London, W., on Oct. 14th. The programme for the winter includes a symposium on the contribution of Alfred Adler (who died last June) to psychological medicine. The first of four papers forming this symposium was read by Dr. H. C. Squires, chairman of the society, at the opening meeting. The other three will be on organ inferiority (Dr. Cuthbert Dukes, Nov. 11th), the contribution of Adler to general medicine (Sir Walter Langdon-Brown, Dec. 9th), and the relation of the sexes (Dr. O. H. Woodcock, Feb. 10th, 1938).

University of Glasgow

On Oct. 16th the following degrees were conferred :—

M.D.—Jacob Shafar.

M.B., Ch.B.—J. P. O. Erskine (with honours); Mary D. Vecchio, Alexander Brown, A. L. Goodall, A. R. Hunter, Angus Young, and J. H. Bruce (with commendation); J. W. Affleck, Isobel C. Allardyce, D. M. Armstrong, Margaret P. Ash, Arthur August, Mary McC. Barron, James Baxter, Catherine McL. Beaton, Mary L. F. Brownlie, J. S. Cameron, John Campbell, Lachlan Carmichael, T. W. Carrick, Margeth A. Cathcart, W. A. W. Chapman, Mary L. A. Chisholm, J. M. Clark, Ben Cohen, W. Y. Cornock, Benjamin Couts, R. W. Crocket, J. C. Davidson, W. P. G. Dickson, E. A. Donegan, J. H. Dorman, W. M. Douglas, Edward Duffy, J. J. Elbert, A. M. Forrest, A. A. Gilmour, David Golombok, R. R. Gordon, Harriet J. Grant, K. C. Grigor, D. St. C. L. Henderson, Janet W. Herriot, E. F. Hill, A. F. Jarvie, H. H. Johnston, J. J. Justice, Robert Kellock, H. C. Kennedy, R. E. King, A. McE. Lamont, Alexander Laurie, James Laurie, Philip Lavery, John Leslie, W. S. Linton, William McAdam, Theodora J. W. McAlpine, J. M. McCrea, Donald MacDonald, David McGowan, J. W. A. MacKenzie, Turner McLardy, J. H. McLaughlin, A. F. MacLean, Angus McLean, Malcolm Macleod, A. N. MacPhail, N. J. McQueen, B. T. Mann, Charles March, J. G. Marra, R. C. Meek, G. A. Mills, A. H. Murray, H. M. Murray, John Neilson, L. A. Ogilvie, A. B. I. Olorun-Nimbe, G. M. Olswang, William Paterson, James Reid, John Richardson, W. E. Smith, W. B. Stirling, A. P. Thomson, Raymond Traill, Daniel Turner, and Ruth M. H. Winter.

The Brunton memorial prize was awarded to Dr. J. P. O. Erskine as the most distinguished graduate in medicine of the year.

Royal College of Surgeons of England

At a meeting of the council held on Oct. 14th, with Sir Cuthbert Wallace, the president, in the chair, Mr. D. S. Short was admitted as a Macloghlin scholar and Mr. Wilfred Trotter, F.R.S., and Mr. W. H. Ogilvie were appointed representatives of the College on the executive committee of the Imperial Cancer Research Fund. Dr. John Beattie, conservator of the museum and director of research, was appointed professor of experimental surgery.

Lieut.-Colonel F. J. Anderson was appointed the delegate of the College at the forthcoming celebrations of the fiftieth anniversary of the University of Allahabad.

The following were appointed superintendents of dissections for the overseas' primary fellowship examinations to be held at the end of this year : Dr. Y. H. Asaar for Egypt, and Mr. R. C. Motwani for India. Dr. C. J. C. Britton and Mr. D. W. Ashcroft were appointed Streatfeild scholars.

Diplomas of membership were granted to Neil Hamlin and A. M. Spencer, a diploma of fellowship to F. J. Hayden.

The following diplomas were granted jointly with the Royal College of Physicians to the following candidates :—

D.C.H.—M. A. Abboud, Ehsan Awad, Jenny D. Craig, Hilla Damry, Annie M. Dawson, C. W. Dixon, Sheila M. Franklin, Gladys I. Hallows, M. R. Kark, B. W. Knight, H. B. Lal, Margaret J. T. Leitch N. F. Lilauwala, R. C. MacKeith, L. K. Mitra, J. W. Parks, Nellie M. Plowright, Gwendolen F. Prince, Jack Sakula, Gordon Scott, J. E. Sewell, H. J. Sinn, Gwladys V. Smallpeice, S. K. Squires, Margaret E. Sutherland, G. L. B. Thurston, H. M. Trethowan, Elizabeth N. Warner, and J. R. Wilson.

D.A.—J. R. Mackenzie, R. M. Muir, and T. T. Stocker.

The following hospitals were recognised for the six months' surgical practice required of candidates for the final examination for the fellowship : Manchester, Crumpsall Hospital (resident surgical officer and 2 house surgeons). Newport, Mon, Royal Gwent Hospital (1st and 3rd house surgeons).

Deafness in Scotland

Last week Mr. Walter Elliot, M.B., Secretary of State for Scotland, visited the extension now being constructed at the Glasgow Ear, Nose, and Throat Hospital. Last year 16,000 patients, of whom 6000 were children under fifteen, were treated, with a total number of 39,000 attendances. The extension will include a new nurses' home and a lecture hall for the students in addition to extra beds, and its cost will be about £30,500. Mr. Elliot pointed out the importance of attending to minor ailments which, if neglected, might lead to deafness. He said that last year 250,000 school-children were medically examined in Scotland and 2000 of these were suffering from discharge from the ears. At the present time there are 5000 deaf people in Scotland.

University of London

Prof. J. H. Gaddum, Sc.D., professor of pharmacology at University College and secretary of the Physiological Society, has been appointed to the university chair of pharmacology tenable at the college of the Pharmaceutical Society of Great Britain. He thus succeeds Prof. J. H. Burn as director of the society's pharmacological laboratories.

Dr. Gaddum went from Rugby to Trinity College, Cambridge, and thence to University College Hospital, qualifying as M.R.C.S. in 1924. He was for a time at the Wellcome Physiological Laboratories, but in 1927 left them to join the staff of the National Institute of Medical Research where he worked at first on thyroxine and allied compounds in collaboration with Prof. Harington. He was later associated with Sir Henry Dale in his early work on the liberation of acetylcholine at nerve-endings, and further investigated the physiological behaviour of vasodilator substances. He went to Cairo as professor of pharmacology in 1934, but returned to London in 1935 to take up his present chair. He is the author of a Medical Research Council report on the biological standardisation of neoarsphenamine; he was associated with the report on the accuracy of biological methods published by the British Pharmacopœia Commission in 1936; and his book, "Gefässerweiternde Stoffe der Gewebe," published in Leipzig last year, is widely known. In the past two or three years, with Barsoum and others, he has made important observations on blood histamine.

Voluntary Hospitals Commission

The British Hospitals Association has set up a provisional central council to consider and advise how the following three recommendations of the Voluntary Hospitals Commission can be best implemented : (1) The division of the country into hospital regions; (2) the formation in each region of a voluntary hospitals regional council to correlate hospital work and needs in the region; and (3) the formation of a voluntary hospitals central council to coördinate the work of the regional councils. Mr. Stansfield P. Richardson, chairman of the Sunderland Royal Infirmary, will be the chairman of the new body; and Mr. Arthur Morley, K.C., recorder of Sheffield, the vice-chairman.

Hanseatic Scholarships

As an expression of gratitude for the Oxford Rhodes scholarships awarded annually to German students an anonymous Hamburg merchant has created a fund to provide at least four scholarships every year for young British graduates who wish to study in Germany. The scholarships will be tenable for one year, and will be of the value of 3000 RM. The scholars will be selected by interview, and preference will be given to those who intend to study at Berlin or Hamburg. The British committee includes Lord Lothian (chairman), Dr. W. G. S. Adams, warden of All Souls' College, Oxford; Prof. E. D. Adrian, F.R.S., Trinity College, Cambridge; Dr. George Gordon, president of Magdalen College, Oxford; Sir Henry Tizard, F.R.S., rector of the Imperial College of Science and Technology, London; and Prof. H. G. Fiedler Taylorian professor of German in the University of Oxford (secretary), from whom further particulars may be had.

Physical Education and the Medical Profession

The first of a series of demonstrations of physical education, arranged for members of the medical profession by the Ling Physical Education Association, was given at the Greycoat Hospital, Westminster, and the Army and Navy Stores on Oct. 14th. The headmistress of the school spoke on the place of physical education in the school curriculum, mentioning specially that the girls in examination forms did not give up any of their physical education during the time of examination pressure. The gymnastic mistress (a diplomate of the Bergman Osterberg Physical Training College) spoke on the aims and principles underlying the gymnastic work taught in the school. She explained that the exercises were based on Ling's scientific principles. A class of 30 sixth-form girls gave a demonstration of gymnastics including free-standing exercises and work on apparatus. After a discussion a class of employees at the Army and Navy Stores gave a demonstration of keep-fit work for adolescents. This was preceded by a talk from Miss Docking (a diplomate of the Bedford Physical Training College) followed by a mothers' class showing work suitable for older women. The demonstration was attended by about 80 doctors.

Elizabeth Garrett Anderson Hospital, London

The Duchess of Kent will lay the foundation-stone of the nurses' house at this hospital, and receive purses in aid of the building fund, on Nov. 4th.

Society of Medical Officers of Health

The annual dinner of this society will be held on Friday, Nov. 19th, at the Piccadilly Hotel, at 7.30 P.M., when Dr. James Fenton will preside. Mr. Robert Bernays, Parliamentary Secretary to the Ministry of Health, will be present.

Society of Physiotherapists

The annual meeting of this society will take place at the Langham Hotel, London, W., on Saturday, Oct. 30th, at 2.30 P.M. After the business meeting an at home will be held at which Mr. A. M. A. Moore will speak on physiotherapy and its relation to orthopædic surgery.

St. Thomas's Hospital

On Oct. 14th Queen Mary opened the new nurses' home at this hospital. It has been built and equipped by Lady Riddell at a cost of £100,000 as a memorial to her husband. The home was designed by Sir Edwin Cooper, R.A., and contains 169 bedrooms, a large recreation room, a library, many sitting-rooms, guest rooms, a smoking-room and a swimming-pool which will be available at certain hours to medical students.

Society for the Provision of Birth Control Clinics

A lecture on the theory and practice of contraception will be given by Dr. Greta Graff on Friday, Oct. 29th, at 6 P.M., at the Walworth Women's Welfare Centre, 153A, East-street, London, S.E. Practical demonstrations will also be given on: (1) Friday, Nov. 5th, at 6 P.M. and at 7 P.M. Medical practitioners and students who have completed their gynæcological course who wish to attend should apply for tickets to the secretary at the Centre.

Surgical Instrument Manufacturers' Association

The annual dinner of this association was held at the Holborn Restaurant on Oct. 15th, Mr. H. Guy Drew presiding. Mr. Hugh Cairns, F.R.C.S., proposing the toast of The Association, said: "I have particular pleasure in coming among you to pay homage to your craft. In these days when the machine has supplanted most of the work that is done by the hand of man you stand as a monument to all the best that was created in the Middle Ages and all the beautiful things that we still have with us from those times. Each instrument, each splint that you make spells the work of the man who made it and I consider that you are worthy to rank alongside the men of former years who left their marks on the stones of our beautiful castles. If the rest of the world could revert to your practice it would be a much happier place." He congratulated the association on establishing three years ago the Institute of British Surgical Technicians for the advancement of knowledge of its younger members. He did not anticipate any further big advances on present lines, but rather some new method, possibly on the technical side, possibly on the physiological or biological side, which would bring new methods into surgery "You have always," he added, "been one jump ahead of the surgeons in the development of your craft." Mr. Drew in responding said that the British surgical industry was the first to adopt a proper education and technical training. The toast of The Guests was proposed by Dr. A. N. Gardner, and Mr. Simpson Smith, F.R.C.S., in responding, said that the surgical industry was in an enviable position in a world of mass production. The instrument makers were artists who could create instruments which would defy time. Dr. G. C. Anderson, who also responded, paid a tribute to the work done by the surgical instrument industry. Mr. Hugh N. Linstead said he was there as the representative of a society which about 100 years ago began to do for pharmacy what the Institute with its new diploma was trying to do for surgical technology. He congratulated the association on the standard it was setting for its members. Mr. F. F. Rundle, F.R.C.S., said that when he was teaching at the Chelsea Polytechnic he was deeply impressed by the enthusiasm and keenness of the students from the Institute.

Honorary Surgeon-Commander J. D. Pollock, M.D., has been appointed a deputy lieutenant of the city and county of Edinburgh.

Papworth Village Settlement

Dr. W. Pagel will give a demonstration at the Sims Woodhead memorial laboratory at the settlement on Saturday, Nov. 20th. The subjects will include the anatomical basis of "epituberculosis" and atypical tuberculosis in the guinea-pig. The demonstration will be followed by a discussion. Those who wish to attend should communicate with Dr. Pagel at Papworth Hall, Cambridge.

Presentation to Dr. Eurich

On the occasion of his retirement from the Anthrax Investigation Board a presentation was made to Dr. F. W. Eurich by his colleagues in Bradford at a farewell dinner held at the Midland Hotel at which Dr. W. Hayburn presided. Dr. J. B. Dunlop recalled the investigations which resulted in finding a method of killing anthrax spores without detriment to the material or the worker. Mr. J. H. Bates, president of the Bradford Chamber of Commerce, presented Dr. Eurich with a substantial cheque on behalf of the Wool Trade, and Mr. Henry Binns, vice-president of the Textile Institute, announced the award of the Institute's medal to him. The history of anthrax in the wool industry of Bradford was told by Dr. Eurich before the Bradford Medico-Chirurgical Society on the occasion of the centenary of the Bradford Royal Infirmary and was published at the time in our columns (*Lancet*, 1926, **1**, 57).

Chelsea Clinical Society

The new session of this society began with its annual dinner on Oct. 19th at the Rembrandt Hotel, when Dr. T. A. Butcher, the president, took the chair. After the loyal toasts the Earl of Athlone, chancellor of the University of London, proposing the health of the society, said he thought the Chelsea Dispensary, its first rendezvous, a curious place from which to dispense hospitality. They had devoted their time there to interesting cases and pathological specimens; he was glad that they had mended their ways and now ate ordinary meals at their meetings. Dr. Butcher, responding, said that the occasion was unique in the history of the society; for the first time they were honoured by the presence of the University of London's chancellor, principal, and Member of Parliament. The university members of the society would be glad to know that it had a last a home of its own. The dinners were valuable in helping busy medical men to meet their colleagues and tended to a spirit of friendly collaboration. The society was very flourishing: in 1897 they had had 34 members, while to-day there were some 240. He concluded by making a presentation to Dr. K. E. Eckenstein, treasurer of the society for 26 years. Mr. F. J. McCann proposing The Guests welcomed especially the representatives of the University of London and the presidents of the kindred societies. Sir Ernest Graham-Little, replying for the former, said that the constitution of the student body in the medical schools of London was rapidly changing, becoming more and more one that took the degree as a matter of course. Out of ten vice-chancellors in 28 years eight had been medical men, and three of the four Members of Parliament in 40 years had likewise been doctors—a fact that had led Mr. H. G. Wells, after failing to gain the seat, to complain that it was a medical monopoly. The University was greater than those of Oxford, Cambridge, and Glasgow together, and in the last available records there were 26,000 registered students. It had grown as much in prestige as in size and the medical degree was undoubtedly the best in the Empire. He said that on the next day the senate was to accede to the formation of a new medical school in the West London Hospital, a tribute to its successful work in post-graduate teaching, which it was to continue. A condition for this was that it should receive women as well as men. Mr. J. E. H. Roberts, president of the Medical Society of London, responding on behalf of the kindred societies, gave a clinical lecture on the new occupational disease of after-dinner speaking.

King George Jubilee Memorial at Newark

The new maternity ward at Newark Hospital, which is a memorial to the jubilee of King George V, was opened on Oct. 7th by the Marchioness of Titchfield. The wing is fully equipped and free of debt.

Purley War Memorial Hospital

At a meeting on Oct. 13th, over which the Lord Mayor of London presided, an appeal was launched for £45,000 to extend and modernise this hospital. The population in the district has increased from 13,000 in 1909 to about 60,000 to-day, and the hospital must be enlarged and the equipment brought up to date.

Manchester and Salford Hospital Saturday Fund

This fund, which now has a membership of 400,000 and a waiting-list of nearly 300 women convalescents, has decided to build a new convalescent home at Arnside, near the existing home. It will have room for 50 women, and it will be possible to extend it later to provide accommodation for 100.

Food and Instinct

In a Chadwick lecture on the study of nutrition given in London on Oct. 14th, Prof. W. A. Osborne, dean of the faculty of medicine at Melbourne, pointed out that in the choice of food instinct plays a much smaller part among human beings than it does among the lower animals. Examples of instinct were the salting of soup, the distribution of calories over the three types of fuel foods, the nausea felt when canned meat is taken for some time, and an instinctive liking for celery and salads. The female animal that has produced young had been banned as food by many peoples, and this instinctive aversion was probably right. The reason why instinct failed in the human were: (1) custom, which must explain the differences in the ordinary diet of France and England; (2) restricted choice, except among the wealthy; (3) imposition of food by authority, as in armies, gaols, schools, and nurseries; (4) comparative novelty of certain foodstuffs, such as sugar; (5) perverted or artificial appetites, slum children preferring condensed to fresh milk; (6) errors of opinion and ignorance of facts; (7) a perverted æsthetic sense leading people to prefer white to grey or brown foods; and (8) mass production and labour-saving packing and distribution. Speaking of the drawbacks attending the food enlightenment of the public, Prof. Osborne remarked that every reform is accompanied by some forfeiture of good. If people became food-conscious this would be contrary to Anglo-Saxon tradition. But he emphasised the national importance of nutritional study, since malnutrition and subnutrition are widespread, and said that at Melbourne University a degree in nutrition is granted after four years' study.

Fellowship of Medicine and Post-Graduate Medical Association

The following courses have been arranged to take place during November and December: dermatology, St. John's Hospital (afternoons, Nov. 1st to 30th); medicine, surgery, and gynæcology, Royal Waterloo Hospital (Nov. 8th to 20th); proctology, St. Mark's Hospital (Nov. 8th to 13th); thoracic surgery, Brompton Hospital (Dec. 6th to 11th); dermatology, Blackfriars Skin Hospital (afternoons, Dec. 6th to 18th). Week-end courses will be held as follows: physical medicine, St. John Clinic and Institute of Physical Medicine (Nov. 6th and 7th); general surgery, Princess Beatrice Hospital (Nov. 20th and 21st); chest diseases, Brompton Hospital (Nov. 27th and 28th); courses in preparation for the January M.R.C.P. examination will be given as follows: clinical and pathological course, National Temperance Hospital (8 P.M., Tuesdays and Thursdays, Nov. 16th to Dec. 2nd); chest diseases, Brompton Hospital (5 P.M., twice weekly Nov. 22nd to Dec. 18th); chest and heart diseases, London Chest Hospital (6 P.M. on Wednesdays and Fridays Nov. 24th to Dec. 18th); neurology, West End Hospital for nervous diseases (afternoons, Dec. 6th to 18th). Courses are open only to members and associates, and further information may be had from the secretary of the fellowship, 1, Wimpole-street, London, W.1.

Leicester Royal Infirmary

Sir Arthur Hazlerigg has opened the Zachary Merton convalescent home, which is the latest addition to this hospital. The Merton trustees gave a grant of £34,119 to defray the cost of its building and furnishing.

King George Hospital, Ilford

The Duchess of Kent visited this hospital on Oct. 12th and received over £1850 in purses from 1600 schoolchildren on behalf of a bazaar being held by the institution.

Wigan Infirmary

Lord Derby has opened the new home for private patients which is a gift to this hospital from Mr. George A. Christopher. The home, which has cost £35,000, is built on land adjoining the hospital and will provide nursing-home comforts for people with modest incomes.

Woking and District Victoria Hospital

An appeal is to be issued on behalf of this hospital, which needs £40,000 for improvements and extensions. There are 49 beds in the hospital, which is a fraction under 1 per thousand of the population, and there is a very long waiting-list. It is felt that there should be at least 75 beds and further provision for a possible 100.

Duke of Kent and Hospitals

The Duke of Kent on Oct. 13th opened the G. H. Downing radiological department at the North Staffordshire Royal Infirmary, and then went on to Birmingham to preside at the opening session of the British Hospitals Contributory Association. He also visited the Birmingham Hospitals Centre where he inspected the nurses' house and college of nursing, the main administrative block, and the medical school.

People's League of Health

At the annual general meeting of this league, held recently at its headquarters, 12, Stratford-place, London, W.1, Dr. C. O. Hawthorne, the chairman of council, presided, and Miss Olga Nethersole, founder and hon. organiser, presented the annual report. She said that there was now a New Zealand League of Health, founded on the British League, and a Health League of Canada, while an Indian League is in process of formation. Mr. A. Ernest Jones spoke of the League's appeal for £50,000, launched just five months ago. Dr. W. G. Savage reported on the League's safe milk campaign, and said he thought this had done something substantial to bring about the change of attitude seen since 1930. A determined effort was now going to be made to reduce tuberculosis in the dairy herds, and steps were going to be taken to permit local authorities, under certain conditions, to allow only pasteurised or tuberculin-tested milk to be sold by retail in their areas. Those proposals embodied two of the main points in the League's programme dating from 1932, but there was a special need at the moment for increased activity, because some people, whose concern in the question was not on the public health side, would probably press for modification or "safeguards" which might materially impair the efficiency of the measures suggested. Again, the League desired a cheaper milk as well as a safe milk, and in that and other directions would not afford to relax its efforts. Sir Walter Langdon-Brown spoke of the importance of a scientific study of nutritional disease, and Prof. James Young said there was no doubt that a very large number of women in this country, especially in the depressed areas, were suffering from a diet inadequate for the purpose of child-bearing and even for their own day-to-day existence. A committee of the League had now formulated a scheme for investigation of this subject and had been fortunate in obtaining the coöperation of a considerable number of important hospitals in London where the inquiry was to be carried out. Sir Frederick Hobday said it had now been definitely decided that a Central Veterinary State Service was to be instituted, which would commence to function legally in January next, and there was no question that if the veterinary profession was given a fair opportunity to utilise its expert knowledge it would only be a matter of time before bovine tuberculosis was eradicated from Great Britain.

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
MONDAY, Oct. 25th.
Odontology. 8 P.M. Mr. Frank J. Pearce: Presidential Address. Dr. Evelyn Sprawson: A Case of Acute Myeloid Leukæmia.
TUESDAY.
Medicine, Therapeutics and Pharmacology. 8.30 P.M. Dr. Leonard Colebrook, Dr. Maurice Mitman, and Dr. G. A. H. Buttle: The Treatment of Bacterial Diseases with Substances Related to Sulphanilamide. Mr. G. Discombe will also speak.
WEDNESDAY.
Comparative Medicine. 5 P.M. Prof. S. P. Bedson, F.R.S.: Some Reflections on Virus Immunity. (Presidential address.)
THURSDAY.
Urology. 8.30 P.M. Mr. Henry Wade: Vesical Exclusion. (Presidential address.)

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, W.
MONDAY, Oct. 25th.—8.30 P.M., Dr. George Graham, Mr. G. Gordon-Taylor, and Dr. H. I. Coombes: Treatment by Intravenous Infusion.

SOCIETY OF MEDICAL OFFICERS OF HEALTH, 1, Thornhaugh-street, W.C.
FRIDAY, Oct. 29th.—5 P.M., Dr. James Fenton: Knowledge is the Key to Health. (Presidential address.)

MEDICO-LEGAL SOCIETY.
THURSDAY, Oct. 28th.—8.30 P.M. (Manson House, 26, Portland-place, W.), Mr. Justice Humphreys: The Place of Medical and Other Science in the Administration of Justice. (Presidential address.)

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn-fields, W.C.
MONDAY, Oct. 25th.—5 P.M., Dr. L. W. Proger: Demonstration of Pathological Specimens in the Museum.
FRIDAY.—5 P.M., Dr. A. J. E. Cave: Surgical Anatomy of the Middle-ear.

UNIVERSITY OF LONDON.
WEDNESDAY, Oct. 27th.—5.30 P.M. (London School of Hygiene, Keppel-street, W.C.), Prof. Raymond Pearl: The Natural History of Population. (First of five Heath Clark lectures.)

TAVISTOCK CLINIC, Malet-place, W.C.
TUESDAY, Oct. 26th.—6.15 P.M., Sir Frederick Whyte: Social and Economic Aspects of War. (First of a course of lectures on the Psychology of Peace and War.)
THURSDAY.—8.30 P.M., Sir Walter Langdon-Brown: Functional Disorders of Digestion.

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane-road, W.
TUESDAY, Oct. 26th.—4.30 P.M., Sir Arthur Hall: Meningitis and Encephalitis.
WEDNESDAY.—Noon, clinical and pathological conference (medical). 2 P.M., Dr. J. Vaughan: The Blood Picture in Bone Diseases. 3 P.M., clinical and pathological conference (surgical). 4.30 P.M., Mr. A. Bradford Hill, Ph.D.: The Planning and Interpretation of Experiments in Medicine.
THURSDAY.—2.15 P.M., Dr. Duncan White: Radiological Demonstration. 3.30 P.M., Prof. J. Chassar Moir: Breech Cases.
FRIDAY.—2.30 P.M., Mr. Reginald Vick: Intestinal Obstruction. 2 P.M., clinical and pathological conference (obstetrics and gynæcology).
Daily, 10 A.M. to 4 P.M., medical clinics, surgical clinics and operations, obstetrical and gynæcological clinics and operations, refresher course for panel practitioners.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith, W.
MONDAY, Oct. 25th.—10 A.M., skin clinic. 11 A.M., surgical wards. 2 P.M., operations, surgical, and gynæcological wards, medical, surgical, and gynæcological clinics.
TUESDAY.—10 A.M., medical wards. 11 A.M., surgical wards. 2 P.M., operations, medical, surgical, and throat clinics. 4.15 P.M., Mr. Woodd Walker: Abdominal Emergencies—When to operate.
WEDNESDAY.—10 A.M., children's ward and clinic. 11 A.M., medical wards. 2 P.M., gynæcological operations, medical, surgical, and eye clinics. 4.15 P.M., Dr. Hasler: Explosion Risks in Anæsthesia.
THURSDAY.—10 A.M., neurological and gynæcological clinics. Noon, fracture clinic. 2 P.M., operations, medical, surgical, genito-urinary and eye clinics. 4.15 P.M., Mr. Edgley Curnock: The Medical Interest of Dental Disease.
FRIDAY.—10 A.M., medical wards, skin clinic. Noon, lecture on treatment. 2 P.M., operations, medical, surgical, and throat clinics. 4.15 P.M., Dr. Hudson: Lipiodol in the Diagnosis of Pulmonary Disease.
SATURDAY.—10 A.M., children's and surgical clinics. 11 A.M., medical wards.
The lectures at 4.15 P.M. are open to all medical practitioners without fee.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, Oct. 25th, to SUNDAY, Oct. 31st.—ST. JOHN'S HOSPITAL, 5, Lisle-street, W.C. Afternoon course in dermatology (open to non-members).—BROMPTON HOSPITAL, S.W. All-day course in chest diseases.—ST. PETER'S HOSPITAL, Henrietta-street, W.C. Advanced all-day course in urology.—INFANTS HOSPITAL, Vincent-square, S.W. Sat. and Sun., course in children's diseases.—Unless otherwise stated these courses are open only to members.

LONDON SCHOOL OF DERMATOLOGY, 5, Lisle-street, W.C.
TUESDAY, Oct. 26th.—5 P.M., Dr. W. K. Sibley: Electrotherapeutics.
THURSDAY.—5 P.M., Dr. W. J. O'Donovan: Dermatological Neuroses. (Chesterfield lectures.)

HOSPITAL FOR EPILEPSY AND PARALYSIS, Maida Vale, W.
THURSDAY, Oct. 28th.—3 P.M., Dr. Douglas McAlpine: Clinical Demonstration.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
THURSDAY, Oct. 28th.—2 P.M., Dr. Donald Paterson: Interpretation of Glandular Enlargement in Childhood. 3 P.M., Dr. Bertram Shires: Interpretation of X Rays of the Chest in Children.
Out-patient clinics daily at 10 A.M., and ward visits at 2 P.M.

ST. GEORGE'S HOSPITAL, S.W
THURSDAY, Oct. 28th.—5 P.M., Dr. Anthony Feiling: Neurological Demonstration.

NATIONAL HOSPITAL, Queen-square, W.C.
MONDAY, Oct. 25th.—3.30 P.M., Dr. Hinds Howell: Meningitis and Meningeal Irritation.
TUESDAY.—3.30 P.M., Dr. Elkington: Motor Symptoms.
WEDNESDAY.—3.30 P.M., Dr. Walshe: Clinical Demonstration.
THURSDAY.—3.30 P.M., Dr. Riddoch: Sensory Symptoms and their Interpretations.
FRIDAY.—3.30 P.M., Dr. Bernard Hart: Psychopathology and the Psychoneuroses.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.
MONDAY, Oct. 25th, to SATURDAY.—Second week of clinical course for Part II of the D.L.O. examination.

ST. JOHN CLINIC AND INSTITUTE OF PHYSICAL MEDICINE, 42, Ranelagh-road, S.W.
FRIDAY, Oct. 29th.—4.30 P.M., Mr. H. J. Taylor, Ph.D.: The Physical Basis for Physical Medicine.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION.
WEDNESDAY, Oct. 27th.—4 P.M. (at the Battersea Mortuary), Sir Bernard Spilsbury: The Post-mortem Examination.

MANCHESTER ROYAL INFIRMARY.
FRIDAY, Oct. 29th.—4.15 P.M., Mr. W. R. Douglas: Surgical Cases.

ANCOATS HOSPITAL, MANCHESTER.
THURSDAY, Oct. 28th—4.15 P.M., Dr. Reid: Treatment of the Neuroses.

LEEDS GENERAL INFIRMARY.
TUESDAY, Oct. 26th.—3.30 P.M., Prof. S. Hartfall: Anæmia, Some Aspects of Diagnosis and Treatment.

LEEDS PUBLIC DISPENSARY AND HOSPITAL.
WEDNESDAY, Oct. 27th.—4 P.M., Mr. A. D. Sharp: Practical Demonstration of Tonsil Dissection.

UNIVERSITY OF SHEFFIELD.
SUNDAY, Oct. 24th, and FRIDAY.—Post-graduate Clinics at the Royal Hospital, Royal Infirmary, and Jessop Hospital.

LIVERPOOL PSYCHIATRIC CLINIC, 1, Abercromby-square.
WEDNESDAY, Oct. 27th.—4.15 P.M., Dr. S. Barton Hall: Psychosis and Mental Disorder.

Appointments

EWING, J. B., M.D. Ontario, F.R.C.S. Edin., Hon. Assistant Surgeon to the Royal Albert Edward Infirmary and Dispensary, Wigan.

HEALEY, D. JANE, M.D., M.R.C.P. Lond., Medical Registrar at the Elizabeth Garrett Anderson Hospital, London.

LORD HORDER, F.R.C.P. Lond., Hon. Consulting Physician to the Charterhouse Rheumatism Clinic, London.

JAMES, G. T., M.B. Wales, D.P.M., Senior Assistant Medical Officer of the Rauceby Mental Hospital, Sleaford.

LLOYD, J. P. F., M.B. Birm., F.R.C.S. Eng., Refractionist to the National Hospital, Queen-square, London.

LYLE, T. K., M.D., M.Chir. Camb., M.R.C.P. Lond., F.R.C.S. Eng., Hon. Assistant Ophthalmic Surgeon to the National Hospital, Queen-square, London.

MEADOWS, S. P., M.D., M.R.C.P. Lond., Hon. Assistant Physician to the Royal London Ophthalmic Hospital (Moorfields Eye Hospital).

O'DONOVAN, P. H., M.D., M.R.C.P. Lond., Hon. Physician to the General Hospital, Nottingham.

ROWORTH, GUY, M.B. Lond., Senior Resident Medical Officer and Registrar at the Aberdeen Maternity Hospital.

SOMERFORD, A. R., M.D. Manch., Hon. Dermatologist to the Salford Royal Hospital.

London County Council Hospital Staff.—The following appointments, promotions, and transfers are announced. A.M.O. (I) or (II) = Assistant Medical Officer, Grades I or II; D.M.O. = District Medical Officer; Temp. = Temporary.

SINGER, J. P., M.B. Camb., A.M.O. (I), St. Andrew's;
CLOTHIER, J. G., M.B. Lond., F.R.C.S. Eng., A.M.O. (I), St. Charles';

MARTIN, W. M., M.B. Belf., F.R.C.S. Edin., A.M.O. (I), St. Mary Abbots';
MAISTER, H. L., F.R.C.S. Edin., A.M.O. (I), St. Olave's;
BLUNDEN, REX, M.B. N.Z., A.M.O. (I), St. Mary, Islington;
STONE, L. D., M.R.C.S. Eng., A.M.O. (II), Lambeth;
LINEHAN, J. J., M.B. N.U.I., A.M.O. (II), St. George-in-the-East;
BRODERICK, G. L., M.B. Camb., A.M.O. (II), St. Nicholas';
HUGHES, PATRICK, L., L.M., R.C.S. Irel., A.M.O. (II), St. Francis';
GIBB, ANN F., M.B. Edin., A.M.O. (II), St. Charles';
YEATES, J. M., M.B. Sydney, A.M.O. (II), St. Stephen's;
CAMPBELL, RUTH M., M.R.C.S. Eng., A.M.O. (II), St. Olave's;
HEISCH, R. B., M.B. Camb., A.M.O. (II), Hackney;
DICKINS, C. M., M.R.C.S. Eng., House Physician, Lewisham;
BLEAKLEY, JOHN, M.R.C.S. Eng., House Physician, St. Mary Abbots;
HARRIS, D. W. T., M.R.C.S. Eng., House Physician, St. Olave's;
MILNE, A. D., M.R.C.S. Eng., House Surgeon, St. Alfege's;
TORRENS, D. J. D., B.Chir. Camb., House Surgeon, St. James';
HULL, RUTH, M.R.C.S. Eng., Clinical Assistant, St. Giles';
NAIRNSEY, COLMAN, M.B. Dubl., Temp. D.M.O., Hampstead;
CUMMING, A. G., M.B. N.Z., A.M.O. (I), St. Mary, Islington;
HOGG, G. C. H., M.B. Sydney, F.R.C.S. Edin., A.M.O. (I), St. Giles';
BLAIR, E. J., M.D. Durh., A.M.O. (I), St. Mary, Islington;
BUTTERWORTH, JOAN, M.B. Lond., A.M.O. (I), King George V Sanatorium;
RAMSAY, A. M., M.B. Aberd., A.M.O. (I), North-Western; and
PHILLIPS, JOHN, M.B. Lond., A.M.O. (II), St. Nicholas'.

Certifying Surgeons under the Factory and Workshop Acts: Dr. H. M. MACGILL (Stokesley District, York, N. Riding); Dr. J. F. FISHER (Whitstable District, Kent); Dr. W. F. DENNING (Elland District, York, W. Riding; and Dr. N. S. TWIST (Normanton District, York, W. Riding).

Vacancies

For further information refer to the advertisement columns

Altrincham General Hosp.—Sen. and Jun. H.S.'s, £150 and £120 respectively.
Aylesbury, Royal Buckinghamshire Hosp.—Second Res. M.O., at the rate of £150.
Belfast, Forster Green Hosp., &c.—H.P., at rate of £150.
Berks and Bucks Joint Sanatorium, Peppard Common.—Med. Supt., £800.
Birmingham City.—Res. Asst. M.O., £450.
Birmingham, Great Barr Park Colony.—Jun. Asst. Res. M.O., £275.
Birmingham, Romsley Hill Sanatorium.—Res. Asst. M.O., at rate of £240.
Birmingham, Selly Oak Hosp.—Jun. M.O.'s, each at rate of £200.
Blackburn, Calderstones Certified Institution for Mental Defectives, Whalley.—Res. Jun. Asst. M.O., £500.
Blackburn Royal Infirmary.—H.S., £175.
British Postgraduate Medical School, Ducane-road, W.—Sub-Dean, £1250.
Chadderton Urban District Council.—M.O.H., School M.O., and Child Welfare Officer, £800.
Chesterfield and North Derbyshire Royal Hosp.—H.S. to Ophth., and Ear, Nose, and Throat Dept., at rate of £150.
Colonial Medical Service.—M.O.H. for Trinidad, £600.
Connaught Hosp., Walthamstow, E.—Hon. Anæsthetist.
Croydon General Hosp.—Hon. Anæsthetist. Also Res. Surg. O., £200.
Doncaster Royal Infirmary and Dispensary.—H.S. to Eye and Ear, Nose, and Throat Depts., £175.
Dorchester, Dorset Mental Hosp.—Jun. Asst. M.O., £400.
Dreadnought Hosp., Greenwich, S.E.—Two Receiving Room Officers, each at rate of £100.
Ealing, King Edward Memorial Hosp.—Cons. Orthopædic Surgeon.
Exeter City.—Deputy M.O.H. and Asst. Tuber. O., £550.
Gloucestershire Royal Infirmary.—H.S. to Ear, Nose, and Throat Dept., at rate of £150.
Halifax Hosp. for Infectious Diseases.—Res. M.O., £350.
Hastings, Royal East Sussex Hosp.—Jun. H.S., at rate of £150.
Hosp. for Sick Children, Great Ormond-street, W.C.—Surg. Reg., at rate of £200.
Huddersfield Royal Infirmary.—H.S., at rate of £150. Also H.S. to Eye, Ear, Nose, &c. Dept., at rate of £150.
Hull Royal Infirmary.—Second H.S. and First H.S., each at rate of £150.
Ilford, King George Hosp.—Asst. Cas. O. and H.S. to Spec. Depts., at rate of £100.
Infants Hosp., Vincent-square, Westminster.—Pathologist, £700.
Lancashire Mental Hosps. Board.—Med. Supt., £950. Also two Deputy Supts., each £750.
L.C.C.—Asst. M.O.'s, Grade 1 and 2, £350 and £250 respectively.
Leicestershire and Rutland Mental Hosp., Narborough.—Asst. M.O., £500.
Liverpool Royal Southern Hosp.—H.S., at rate of £60.
Manchester, Baguley Sanatorium.—Res. Jun. Asst. M.O., at rate of £250.
Manchester, Crumpsall Hosp.—Res. Asst. M.O., at rate of £200.
Manchester Royal Children's Hosp., Pendlebury.—Res. Surg. O., at rate of £150.
Manchester Royal Eye Hosp.—Jun. H.S., £120.
Middlesex County Council.—Physician for West Middlesex County Hosp., £650.
Mount Vernon Hosp., Northwood.—Res. H.S.
Northampton County Council.—Asst. M.O. for Maternity and Child Welfare and School Inspection, £600.
Plymouth City and Port.—Asst. M.O.H., £500.
Queen Charlotte's Maternity Hosp., Marylebone-road, N.W.—Res. M.O. for Isolation Hosp., at rate of £200.
Reigate Borough.—Asst. M.O. (Part-time), £450.
Richmond, Surrey, Grove-road Institution.—Res. Asst. M.O., at rate of £375.
Rochester, St. Bartholomew's Hosp.—H.S., at rate of £150.
Royal Cancer Hosp., Fulham-road, S.W.—H.S., at rate of £100.
Royal Chest Hosp., City-road, E.C.—H.P., at rate of £100.
Royal London Ophthalmic Hosp., City-road, E.C.—Refraction Asst. to L.C.C. School Dept., £160. Also 3 Out-patient Officers, each £100.
Royal Naval Dental Service.—Dental Officers, each £362.
Royal Naval Medical Service.—Medical Officers.
Royal Northern Hosp., Holloway, N.—Fracture Officer and Orthopædic Registrar, £50. Also Second Ear, Nose, and Throat Surgeon.
St. Bartholomew's Hosp., E.C.—Asst. Ophth. Surgeon.
St. Helens Hosp.—Jun. H.S., £150.
Salisbury General Infirmary.—H.P., at rate of £125.
Samaritan Free Hosp. for Women, Marylebone-road, N.W.—H.S., at rate of £100.
Stirling District Mental Hosp., Larbert.—Jun. Asst. M.O., at rate of £300.
Sunderland, Royal Infirmary.—H.S., £120.
Sydney Hosp.—Pathologist to Kanematsu Memorial Institute of Pathology, £900.
University College Hosp., Gower-street, W.C.—Surg. Reg., £250.
West London Hosp., Hammersmith-road, W.—Chief Asst. to Dept. for Treatment of Injuries, at rate of £200. Also Neurologist.
Wigan, Royal Albert Edward Infirmary and Dispensary.—Hon. Asst. Ophth. Surgeon.
Will Edmonds Clinical Research Fund.—£500.
Winchester, Royal Hampshire County Hosp.—H.P., at rate of £125.
Wolverhampton, Prestwood Sanatorium.—Jun. Asst. M.O., at rate of £300.

Births, Marriages, and Deaths

BIRTHS

CRAIG.—On Oct. 5th, at Framlingham, the wife of Dr. D. M. Craig—a son.
KAUNTZE.—On Oct. 17th, at Cromwell-road, S.W., the wife of Dr. Ralph Kauntze—a daughter.
LAKE.—On Oct. 14th, the wife of Mr. Norman C. Lake, F.R.C.S., Hendon-lane, N.—a daughter.
MANNINGTON.—On Oct. 14th, at St. Leonard's-on-Sea, the wife of Dr. Hugh Mannington, of Ryde—a son.
MORRAH.—On Oct. 11th, at Pointe-à-Pierre, Trinidad, B.W.I., to Dr. Catherine Morrah (née Day)—a daughter.
MOYNAGH.—On Oct. 19th, at St. Bartholomew's Hospital, London, the wife of Dr. Digby Moynagh—a son.
PEEL.—On Oct. 18th, at Beaumont House, W., the wife of Mr. John Peel, F.R.C.S.—a daughter.
SEDDON.—On Oct. 19th, the wife of Herbert Seddon, F.R.C.S., Eng., of Moor House, Stanmore, Middlesex—a son.

MARRIAGES

GALLIMORE—WOODD.—On Oct. 14th, at the Parish Church, Pleshey, Essex, Robert Gallimore, M.B., to Mary Emily eldest daughter of the Rev. C. H. B. Woodd, Vicar of Pleshey.
LOGAN—STEWART.—On Oct. 16th, at St. Columba's (Church of Scotland), Pont-street, Robert Logan, M.B., to Helen Christian, daughter of Mr. W. M. Stewart, of Southgate, London, N.

DEATHS

BLUMER.—On Oct. 16th, at Stafford, Frederick Milnes Blumer, M.B. Edin., J.P., in his 79th year.
LAWRENCE.—On Oct. 14th, in a London hospital, Stephen March Lawrence, M.D. Lond., aged 61.
LIGHTBODY.—On Oct. 13th, at Sidmouth, John Henry Lightbody, M.D. Vict., M.R.C.S. Eng., aged 81.
MACKINTOSH.—On Oct. 14th, at Aberdeen, Ashley Watson Mackintosh, K.C.V.O., M.D., LL.D. Aberd., F.R.C.P. Edin., aged 69.
PARTRIDGE.—On Oct. 14th, Arthur Aubrey Hungerford Partridge, M.D. Oxon., of Ashtead, Surrey.
ROBINSON.—On Oct. 17th, at Bosham, Sussex, Surg.-Comdr. Charles H. J. Robinson, R.N. (retd.).

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

LEEDS GENERAL INFIRMARY.—The Princess Royal recently opened the new nurses' home at this hospital. The home is the first part of an extension scheme, which is to cost £250,000. Every nurse has a private room, with hot and cold water and central heating, while each wing contains a reading-room, a writing-room, and a rest-room. A new out-patient department is being built, which is to be one of the largest in the country and there is also to be a new wing for paying patients.

NOTES, COMMENTS, AND ABSTRACTS

A PROMISING SOCIAL EXPERIMENT

By Denis Carroll, M.A. Camb., M.R.C.S. Eng.
CO-DIRECTOR OF THE INSTITUTE FOR THE SCIENTIFIC TREATMENT OF DELINQUENCY

"Q" Camp was started in May, 1936. After so short a time one cannot speak of results, and caution must be exercised in accepting conclusions. Considerable progress has however been made in demonstrating the need for such camps, and in defining and diagnosing the type of person most likely to benefit by living in them.

The object is to attempt the reformation of minor delinquents, and other socially undesirable types, by means of communal life in a self-governing colony. If we divide the methods of training such people into

(*a*) Punishment for offences,
(*b*) Rewards for good behaviour, and
(*c*) Affording the fullest possible scope for learning by experience the most satisfactory mode of life,

we could say that "Q" Camp aims at using the third method exclusively. Experience has modified this to the extent that rewards, in the form of increased pocket money and other minor advantages, have been found helpful, and that, while punishment is never introduced openly, there is inevitably the implied punishment of discharge from the camp. In addition, it has occasionally been necessary to apply some form of psychiatric treatment, and it seems likely that psychiatric interviews will play an increasing part in the successful running of the camp.

Discipline is not absent, but it is applied by the members themselves through the camp council, which consists of the members and staff of the camp and is the instrument of self-government. "Q" differs from Borstal and other penal institutions in that discipline is much less severe; and from public schools and institutions modelled on them in that public opinion, though frequently strong is enforced less harshly and less indiscriminately. To give a crude example, it would not be possible in "Q" Camp for a man with a marked sense of inferiority to be "sent to Coventry." Moreover, one of the functions of the camp chief, acting partly through the council and partly by his personal contact with the members, is to modify and guide this public opinion. The camp has been fortunate in its chief, Mr. David Wills, and it is in no small measure due to him that "Q" Camp has passed from the stage of ultra-experimentation to that of constructive reformative work.

INTENTION AND ACHIEVEMENT

The camp came into being because many people concerned with the handling of minor delinquents believed that many of these cases suffered from a lack of adaptability to social requirements, largely due to (late) environmental causes, that is to say, that such factors as bad home surroundings, spoiling, bad companions, ill treatment, &c., had played a relatively large part as compared with, say, heredity and disease, in the production of their a-social state. Moreover, some of these cases did not do as well as they might under the existing corrective system. They concluded that a long stay in a self-governing colony with others of the same type would be likely to achieve success. The experiment was therefore tried. As would be expected, the selection of cases has proved a difficulty. From the start full psychiatric and physical examination has been made of everyone admitted to the camp, and in this way it has been possible to define more closely the type of case which should be admitted. It has proved necessary to restrict the camp to males between the ages of 16½ and 25. It has also been found wise to mix cases which have come before the courts with those which have not, and to rule out the more serious offenders, and convicts.

At first many psychopaths were referred and a number were tried. There is reason to believe that mild schizophrenics and schizoid personalities may benefit from such a tolerant life as is found in the camp, and it is true that some such have improved at "Q." They are now excluded because, unfortunately, their extreme slowness of progress, due to their pathological lack of adaptability, discourages the more normal men. Such men require and would derive benefit from a camp of their own. Mild psychopathic personalities appear suitable, provided they fulfil the conditions mentioned below. Alcoholics are not suitable because the open nature of the camp makes the control of their drinking impossible. Cases of neurosis are not necessarily unsuitable, indeed, some obsessionals with marked conscientiousness actually have a good effect on the general spirit of the camp. Tramps have not been found suitable, and like the schizophrenics, they need a camp of their own. They are catered for by other bodies; the so-called normal ones by the Wayfarers' Hostels, and those presenting a varying degree of abnormality at Walsh Manor, which has arisen out of the work of the Wayfarers' Hostels.

It has been found desirable, for the production of esprit de corps, to have a majority of normal persons in the camp, that is to say, normal in that they show no text-book psychological disorder, although speaking very strictly all cases of social maladjustment dealt with at "Q" might be termed psychopathic personalities. It is too early to speak of results, although such relapses as have occurred have been in those discharged early as unsuitable, or in those who have discharged themselves.

There has been a serious difficulty from lack of money, and this has almost caused an overdose of self-government and self-support, in that the camp members had to build and establish their camp, starting with an empty field. The conditions are still somewhat too primitive, but there have been few failures from this cause. The failures and the spontaneous discharges seem to have been due to the presence of marked attachments, usually of a psychologically undesirable kind, to people outside the camp. This factor of attachment is prominent throughout, and it seems probable that it is by exploiting the capacity for attachment (i.e., transference) that the camp succeeds. It provides a small world in which failure to come up to the social requirements of that world are treated benignly by all concerned. This striking difference from such self-governing colonies as Bolshevo is perhaps due to the milder type of case at "Q," or possibly to racial differences, and to the absence of markedly aggressive types at "Q." Its tolerant atmosphere affords scope for an a-social member to discover, in a way which arouses in him the minimum of resentment, obstinacy, and guilt, that the achievement of his wishes depends very largely on his degree of coöperation with his fellows. By coöperation with the people living in the surrounding

country he gradually learns that this principle also applies in the world at large. It is, as it were, a method of going through one's childhood a second time in adolescence, and thereby eliminating the mistakes of the earlier period.

SELECTION OF CASES

The type of man that can be reformed in this way is strictly limited, and as a clinical guide in selecting cases one must use the opinion of the psychiatrist in assessing the importance of such environmental difficulties in the production of the individual delinquent state, since these are the only factors which can be modified in this way. Our knowledge of delinquency at present is not strictly adequate, but the routine psychiatric examination of "Q" cases is yielding valuable material. It will be apparent that the psychopath will rarely be suitable for "Q," since such factors are of relatively less importance for him. Some criteria exist for choosing cases suitable for "Q" as opposed to probation and Borstal. One may say that the types which do not respond to discipline, or which tend to react to punishment by repetition of their offences, are types suitable for "Q." Such cases tend to run wild if given freedom, and in later adolescence their wildness may be more than can be tolerated. "Q" will do best with those showing only a mild tendency to run wild, that is with the less aggressive types. Inferiority types are also suitable.

With the type of case at "Q" there is an inevitable tendency to over-attachment to the camp chief, and this is dealt with, when necessary, by psychiatric interviews. Only the less stable obtain psychiatric treatment, which is given by the Institute for the Scientific Treatment of Delinquency. In addition it has been found helpful to have a few interested people maintaining contact with the members.

"Q" may be considered very definitely as supplying a need. Probation officers, and others, who refer cases there, have expressed the view that they need "Q" for such of their cases as have been mentioned above. One might say that "Q" exists for those cases that fall between Borstal and probation. It is an experiment based on the belief that the wish for the regard, or love, of one's fellows is a sufficient incentive to restore many to a social life, and the facilities which "Q" gives for the obtaining of this regard without undue censure or blame falling on sensitive youths for their failures, are essential to a definite, though small, section of the community. After a year's experience one might with justification commend "Q" both to the medical profession and to official notice.

A BIOGRAPHY OF JOHN MELLY

BEFORE the second half of the Italian invasion of Abyssinia, John Melly's name was unknown except to a wide circle of friends in this country and America, and in the schools, university, and hospitals where he had worked. He had not set out on any one of the well worn roads that lead—sometimes—to what we call success. Then came the news of his errand of mercy with the British Ambulance Service in Ethiopia, followed by the final story of his death in Addis Ababa. It seemed all the more tragic that, having escaped bombing by the Italians, he should die by the hand of one of the race he had gone to help. Yet there were some who, while admiring him, thought of Melly as little more than a rather splendid adventurer who went to Abyssinia chiefly for the fun of the thing. There was more in it than this. The date of Melly's first interest in Abyssinia is not known, but by July, 1934, it had taken possession of him to such an extent that he went out, complete with plans for a modern hospital and medical school, to enlist the sympathy of the Emperor and succeeded in doing so. A second visit followed, but by this time the cloud of war was considerably larger than a man's hand. Medical work, if any, must now be in preparation for hostilities that the Emperor was trying hard to avert. It never occurred to Melly to withdraw—indeed he saw the problem as one of much greater urgency than he had dreamed of at first. This was the beginning of the British Ambulance Service.

The story of its work, and much besides, is told in a collection of letters and dispatches recently published.[1] The editors have done their work well, and it was fortunate for them and for us that Melly, his family, and his many friends were accomplished in that now almost forgotten art of letter-writing. We are presented with the picture of a charming little boy at a preparatory school, brought up in a simple faith by a devoted and sensible mother. Then come Marlborough, war service, Oxford, and Bart's. Out of it all emerges a lovable man, Elizabethan in character, cultivated, fond of the good things of life, competent in professional work, and—at the same time—always wrestling with the probem of his duty as a Christian in the world to-day. Throughout this period, and, indeed, until he began to see some prospect of satisfying his lifelong ambition to be a missionary, Melly was in a constant state of restlessness. The cover of the book makes reference to his "dual nature," but the editors have wisely refrained from attempting an analysis of his character; the reader will form his own impression from the wealth of material presented. The second half of the book is largely made up of letters and dispatches; it is concerned with Melly's work in Abyssinia, and is the greatest possible tribute to his determination, heroism, and irrepressible good humour. It gains strength from the absence of comment, and the lighthearted way in which Melly describes the appalling difficulties with which the B.A.S.E. was faced.

A NEW HOSPITAL MATTRESS

DR. H. ROLAND SEGAR, medical superintendent of the Wellhouse Hospital, Barnet, writes: For some time past it has been apparent to me, as to others in administrative positions, that the hair mattress, even when made of good-quality hair and good-quality ticks, has very definite disadvantages. Under severe hospital wear it has a short life, the latter part of which is very uncomfortable for the patient. In connexion with the equipment of our new puerperal sepsis block, where mattresses will be frequently sterilised, I decided some months ago to experiment with various types of mattresses, and I was fortunate in being able to interest Mr. Bernard Hicks in our requirements. Thanks to his coöperation a spring-interior mattress has been evolved which has great durability and can be sold at a price below that of a hair mattress. The interior spring is a continuous hand-wound high-tensile steel wire guaranteed for five years: it will withstand the passage over it several times of a large steam roller. The wire does not rust nor is the resilience of the spring affected by sterilising heat (260° F.) for 75 hours. Since the springs have no joins there is no noise when they are compressed; there are no projections to wear through the coverings, and the weight is evenly distributed over a considerable length of wire, so that the patient's body is evenly supported. It can be rolled, and there is uninterrupted ventilation through the entire spring to the outside air. Our experience at the Wellhouse Hospital is that when this new mattress is employed there is no necessity to provide special air beds, rubber beds, and the like. It can be used unaltered for the Fowler position and on special Fowler beds; it can be lifted easily by one person, the usual handles being provided on either side; and

[1] John Melly of Ethiopia. Edited by Kathleen Nelson and Alan Sullivan. London: Faber and Faber. 1937. Pp. 284. 8s. 6d.

it is easily turned by one nurse from the top to the bottom of the bed by bending in the centre like a hair mattress. Finally, it can be remade using the same spring, and where required can be enclosed in a rubber cover, the latter being washed with soap and water between infectious cases. The mattress is now being manufactured by the Raco-Epeda Co., Ltd., Colnbrook Mills, Colnbrook, Bucks.

A MISGUIDE TO SPORT

DOCTORS to-day seem to have unlimited time between surgery hours to record their teeming thoughts. It makes a pleasant change, however, when the result of this mental catharsis is not a novel damning the profession in heaps but a few high-minded observations on the Englishman's birthright, sport. Any serious student of sport who turns to Mr. Wotherspoon and Dr. Jackson for information will find plenty to mislead him.[1] Mr. Wotherspoon is not a medical man and so need not allow his strict disregard for truth to hamper him. Speaking as a golfer, he reminds us that "at the nineteenth, every lie is a good lie." Dr. Jackson (speaking as a cricketer) is no less untrustworthy, quoting a previously unrecorded remark of Julius Cæsar, when Brutus was cutting him: "Dico, vetus puer, hæc non est cicada." The two together lead us through the exigencies of rugger, fox-hunting ("that thundering English rose, the Hunting Woman, is perhaps the hardiest annual in the garden of England"), shooting, backgammon, bridge, darts, dog-showing, fly-fishing, and a lot of other fancy pastimes including natural history. They make these occupations sound much more entertaining than they are in practice. Who, for example, can improve on the following recipe for the hat-trick: "For this simple *jeu d'esprit*, three rabbits are necessary, and, of course, a bowler. The idea is to get the rabbits out as quickly as possible without anybody, not even the rabbits, quite seeing how it is done." Or who can fail to endorse this description of that "thoroughly English dance" the Paul Jones: "Each man grabs the nearest and least repellent girl and they resentfully tread together a regulation measure, mostly on each other's toes, till the band once more plunges into 'The Ocean Wave.'" Interpreting and reinforcing all this comedy are the pictures of Alison Fuller, witty, detailed, and admirably observed, from the "endless variety of habiliment" of the beaglers to the tough girls who show dogs, and the hairy splendour of Paul Jones in person. Anybody who has a half-day off a week to spend on keeping fit should see that his family gives him this book for Christmas.

STUDENTS' GUIDE 1937–38: ADDENDA

A FEW omissions from the information given in THE LANCET of August 28th have been brought to our notice.

In describing the educational facilities at *Queen Mary's Hospital for the East End* (p. 503) no mention was made of the pathological laboratory, which serves not only the institution itself but takes in work from other hospitals and for the borough and county councils.

Leeds was omitted (p. 545) from the list of universities granting the *Diploma in Public Health*. "We are in fact," the dean tells us, "having bigger classes than ever before."

Under the heading University of Edinburgh (p. 512) reference was inadvertently omitted to the *Edinburgh Eye, Ear, and Throat Infirmary*.

Among the teaching hospitals of Dublin (pp. 520–22) no reference was made to *Cork-street Hospital*, one of the oldest fever hospitals in the British Isles (being founded in 1801) and the largest teaching fever hospital (280 beds) in the Free State. The hospital is recognised by the National University, Trinity College, and the Irish Conjoint Board for undergraduate and post-graduate instruction.

[1] Some Sports and Pastimes of the English. By Ralph Wotherspoon and L. N. Jackson. Illustrated by Alison Fuller. London: Herbert Jenkins. Pp. 96. 3*s*. 6*d*.

Attention has already been called (p. 754) to revised conditions prevailing in the *Sudan Medical Service* But we omitted to mention that the 7½ per cent. abatement of pay is no longer in force. Actually this measure was rescinded over three years ago.

As the result of a petition in 1934 of the African *medical officers in Sierra Leone* for improved conditions of service, the word "African" has been deleted from their title and they are now officially styled Medical Officers (Sierra Leone, or Gold Coast, or Nigeria, or Gambia, as the case may be). European officers are styled Medical Officers (Colonial Medical Service). The West African Medical Service has been abolished. The scheme of appointing young medical men (Africans) temporarily for a year as house surgeon has been extended to Sierra Leone, where also two higher posts (medical officer and pathologist) have been created with salary rising to £820.

Since the Students' Number was issued we have received from H.M. Stat. Office (Colonial, No. 140, 1*s*. 3*d*.) the second edition of the *Colonial Medical Service list*, revised up to August 1st of the present year, conveniently arranged alphabetically with brief biographical records. Officers desiring additions or corrections are invited to write to the editor of the list at the Colonial Office.

LONDON STREETS

MANY medical men who have not already purchased a copy of the new handbook issued by H.M. Postmaster-General entitled "London Post Offices and Streets," June, 1937, would find it very useful. It is a large book for sixpence and replete with information. It is also interesting. In five minutes we found Doctor Street, Surgeon Street, Asylum Road, Herbal Hill, Insurance Street, and Ion Square. One item, "XX Place, E.1," is hardly less curious than the "Of Alley" of the Adelphi, which has now been renamed.

THE LANCET 100 YEARS AGO

October 21st, 1837, p. 125.

From a leading article.

When we commenced the publication of this Journal, one of the first principles which met with the most determined opposition from a short-sighted and self-interested coterie, was the right which we claimed of publishing, for the benefit of our professional brethren, the lectures delivered by medical men in *public* medical institutions. The history of this contest is still fresh, we believe, in the memories of most of our readers; the struggle, though fierce, was a brief one; right triumphed over might, and the materials for creating a vast quantity of knowledge, which, until then, remained useless in the wards of the hospitals, like treasures in the coffers of the miser, then, for the first time, were generally diffused amongst the profession. Many of the men who, up to that eventful period, waged against us a "war to the knife," are now compelled to confess that they themselves have reaped, from the publication of their lectures, benefits of the most solid and lasting kind. Strange blindness of human nature! For the last few years publicity has become the element of reputation of all men occupying distinguished stations; far from threatening us with the pains and penalties of the law, for presuming to confer an European celebrity upon our surgeons and physicians, by the publication of their lectures, these gentlemen now feel that their own interests are intimately connected with the interests of society at large, and are now suitors for that publicity which their immediate predecessors affected to regard as the ground-work of their ruin. It were needless to point out, at this epoch, the benefits which accrue to the profession in this country, from the publication of lectures upon the various branches of medical science by eminent individuals, whose talents, qualifications, and acquirements, entitle them to become *teachers*. We are proud to say that, through our instrumentality, these benefits have been extended to a great part of the civilized globe.